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Product Features

High Performance Notebook Computer

- Intel Core™2 Duo/Celeron Processor. DDR III Memory
- Wireless LAN (Optional), Bluetooth (Optional)
- Intel Turbo Memory (Optional)
- Fingerprint recognition (Optional), TPM(Trusted Platform Module) (Optional)

Easy-to-Use AV

- Camera Module Installed (Optional)

Sophisticated Design for Increased Usability

- Various shortcut keys on the keyboard
- Multi card slot (Optional)
- Luxurious design with increased usability

Optional items may be changed or may not be provided depending on the computer model.

Before You Start

Before reading the User Guide, first check the following information.

- Optional items, some devices and software referred to in the User Guide may not be provided and/or changed by upgrade. Note that the computer environment referred in the User Guide may not be the same as your own environment.
- Images used in this User Guide may differ from actual product.
- This guide decribes procedures for using both the mouse and the touchpad.
- This manual has been written for the Windows operating system. The descriptions and figures may differ depending on the installed operating system.
- The User guide supplied with this computer may vary depending on your model.

Safety Precaution Notations

Icon	Notation	Description
	Warning	Failing to follow instructions marked with this symbol, may cause personal injury and or fatality.
	Caution	Failing to follow instructions marked with this symbol, may cause slight injury to yourself or damage your property.

Text Notations

Icon	Notation	Description
	Before You Start	Content included in this section includes information required before using a function.
	Caution	Content included in this section includes information required about the function.
	Note	Content included in this section includes helpful information to use the function.

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The information in this document is subject to change without notice due to improving the performance of the product.

Samsung Electronics shall not be liable for any data loss. Please take care to avoid losing any important data and backup your data to prevent any such data loss.

Precautions for Operating System Support

If a problem occurs because of the reinstallation of other operating systems(OS) or a previous version of a OS pre-installed on this computer, or a software that does not support the OS, the company will not provide technical support, a replacement or refund, and if our service engineer visits you due to this problem, a service charge will be applied.

About the Product Capacity Representation Standard

About HDD Capacity Representation

The capacity of the storage device (HDD, SSD) of the manufacturer is calculated assuming that 1KB=1,000 Bytes.

However, the operating system (Windows) calculates the storage device capacity assuming that 1KB=1,024 Bytes, and therefore the capacity representation of the HDD in Windows is smaller than the actual capacity due to the difference in capacity calculation.
(E.g. For a 80GB HDD, Windows represents the capacity as 74.5GB, 80x1,000x1,000x1,000 byte/ (1,024x1,024x1,024)byte = 74.505GB)

In addition, the capacity representation in Windows may be even smaller because some programs such as Recovery Solution may reside in a hidden area of the HDD.

About Memory Capacity Representation

The memory capacity reported in Windows is less than the actual capacity of memory.

This is because BIOS or a video adapter uses a portion of memory or claims it for further use.

(E.g. For 1GB(=1,024MB) memory installed, Windows may report the capacity as 1,022MB or less)

Recovery Solution Representation (Optional)

Q. What is a Recovery Area?

A. – Samsung computers have an additional partition to recover computers or save backup files. (Only for models with the Samsung Recovery Solution.)
This partition is called a Recovery Area and it includes a recovery image that comprises of the OS and application programs.

- You can either double-click the Samsung Recovery Solution icon on the desktop or press F4 while booting the computer to enter the Recovery Area. Then you can back up the present computer state or recover the computer from backed up images.
- For deleting the Recovery Area, you need to use an additional Recovery Area Removal Tool. After deleting the recovery area, you can use the newly created partition for other uses, such as for saving personal data. Be careful that once the recovery area is deleted, the Samsung Recovery Solutions will not work anymore.

Q. The capacity representation of the hard disk drive(HDD) in Windows is different from the product specifications.

A. - The capacity of the storage device (HDD) of the manufacturer is calculated assuming that 1KB=1,000 Bytes. However, the operating system (Windows) calculates the storage device capacity assuming that 1KB=1,024 Bytes, and therefore the capacity representation of the HDD in Windows is smaller than the actual capacity. This is due to the difference in capacity calculation and does not mean the installed HDD is different from the product specifications.

- The capacity representation in Windows may be smaller than the actual capacity because some programs occupy a certain area of the HDD outside of Windows.
- For models with Samsung Recovery Solution, the HDD capacity representation in Windows may be smaller than the actual capacity because Samsung Recovery Solution uses a hidden area of about 5~20GB of the HDD to save the recovery image, and that hidden area is not counted towards the total size available to Windows. The size of Samsung Recovery Solution varies by models because of the different size of applied programs.

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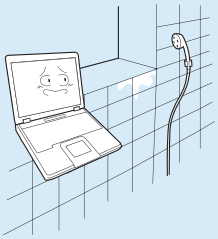
Safety Precautions

For your security and to prevent damage, please read the following safety instructions carefully.
Since this is commonly applied to Samsung Computers, some pictures may differ from actual products.

⚠ Warning

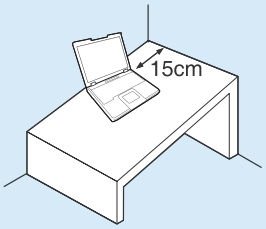
Failing to follow instructions marked with this symbol may cause personal injury and even fatality.

Installation Related



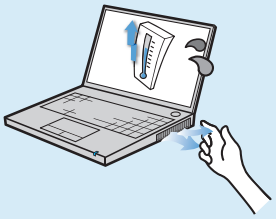
Do not install the product in places exposed to humidity such as a bathrooms.

There is a danger of electric shock. Use the product within the operating conditions specified in the Manufacturers User Guide.



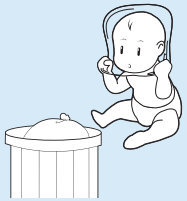
Keep a distance of 15cm or more between the computer and the wall and do not place any objects between them.

This may increase the internal temperature of the computer and may cause an injury.



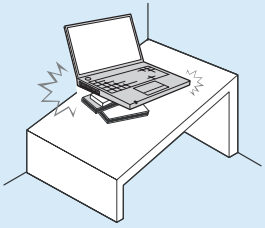
Avoid exposing any part of your body to the heat from the computer vent or AC adapter for a long time when the computer is on.

Exposing a part of your body close to the heat from the vent or AC adapter for long periods of time may cause a burn.



Keep the plastic bags out of the reach of children.

There is a danger of suffocation.



Do not install the computer on a slant or a place prone to vibrations, or avoid using the computer in that location for a long time.

This increases the risk that a malfunction or damage to the product will occur.

Avoid blocking the vent at the bottom or side of the computer when using it on a bed or cushion.

If the vent is blocked, there is a danger of damaging the computer or overheating the inside of the computer.

Warning

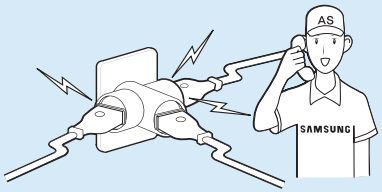
Failing to follow instructions marked with this symbol may cause personal injury and even fatality.

Power Related

The power plug and wall outlet figures may differ depending on the country specifications and the product model.

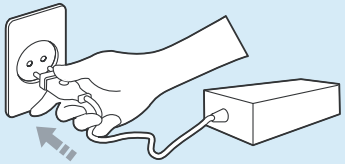
Do not touch the main plug or power cord with wet hands.

There is a danger of electric shock.



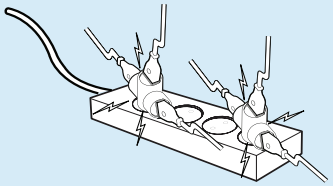
If the power cord or power outlet makes a noise, disconnect the power cord from the wall outlet and contact a service center.

There is a danger of electric shock or fire hazard.



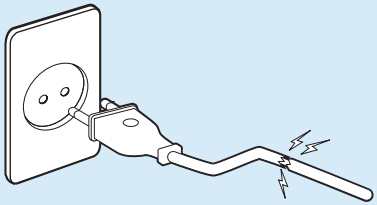
Plug the power cord firmly into the power outlet and AC adapter.

Failing to do so may cause fire hazard.



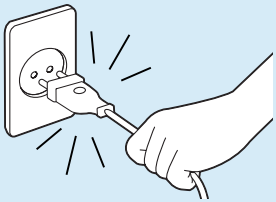
Do not exceed the standard capacity (voltage/current) of a multiplug or power outlet extension when using it for the product.

There is a danger of electric shock or fire hazard.



Do not use a damaged or loose main plug or power cord or power outlet.

There is a danger of electric shock or fire hazard.

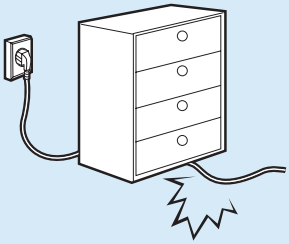


Do not unplug the power cord out by pulling the cable only.

If the cord is damaged, it may cause electric shock.

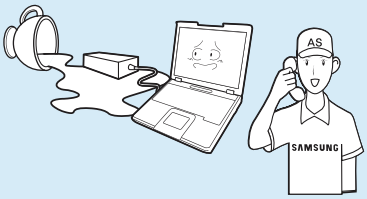
Warning

Failing to follow instructions marked with this symbol may cause personal injury and even fatality.



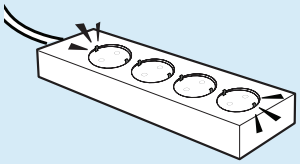
Do not bend the power cord excessively or do not place a heavy object over the power cord. It is especially important to keep the power cord out of reach of infants and pets.

If the cord is damaged, it may cause electric shock or fire.



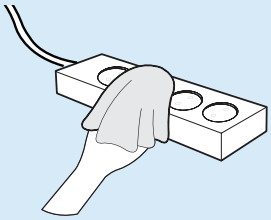
If water or another substance enters the power input jack, AC adapter or the computer, disconnect the power cord and contact the service center.

Damage to the device within the computer may cause electric shock or fire hazard.



Connect the power cord to an outlet or multiple power plug (extended cable) with a ground terminal.

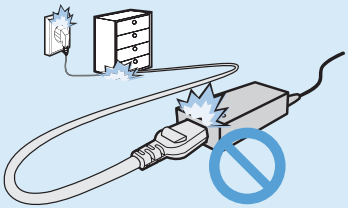
Failing to do so may result in electric shock.



Keep the power cord or outlet clean so that they are not covered with dust.

Failing to do so may result in fire.

AC Adapter Usage Precautions



Do not place heavy objects or step onto the power cord or AC adapter to avoid damaging the power cord or AC adapter.

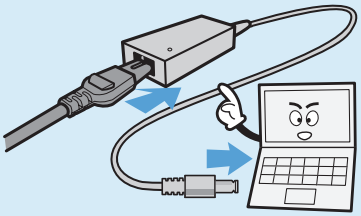
If the cord is damaged, there is a danger of electric shock or fire.

Use only the AC adapter supplied with the product.

Using another adapter may cause the screen to flicker.

Warning

Failing to follow instructions marked with this symbol may cause personal injury and even fatality.



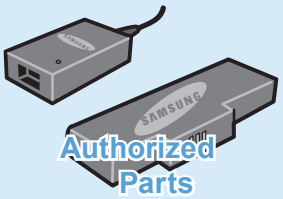
Connect the power cord to the AC adapter firmly.

Otherwise, there is a danger of fire due to an incomplete contact.

Battery Usage Related

Keep the battery out of the reach of infants and pets, as they could put the battery into their mouths.

There is a danger of electric shock or choking.



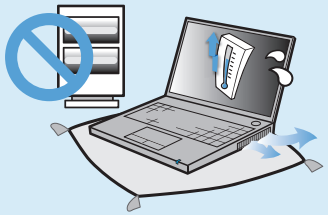
Use an authorized battery and AC adapter only.

Please use an authorized battery and adapter approved by Samsung Electronics.

Unauthorized batteries and adapters may not meet the proper safety requirements and may cause problems or malfunctions and result in an explosion or fire.

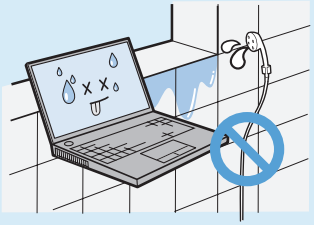
Warning

Failing to follow instructions marked with this symbol may cause personal injury and even fatality.



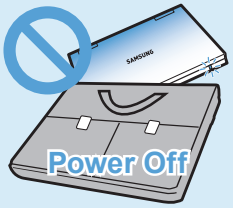
Do not use the computer in a badly ventilated location such as on bedding, on a pillow or cushion, etc, and do not use it in a location such as room with floor heating as it may cause the computer to overheat.

Take care that the computer vents (on the side or the bottom) are not blocked especially in these environments. If the vents are blocked, the computer may overheat and it may cause a computer problem, or even an explosion.



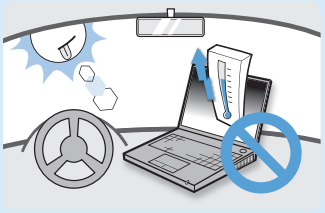
Do not use the computer in a humid location such as a bathroom or sauna.

Please use the computer within the recommended temperature and humidity range (10~35°C, 20~80% RH).



Do not close the LCD panel and put the computer into your bag to move it when it is still turned on.

If you put the computer into your bag without turning it off, the computer may overheat and there is a danger of fire. Shut the computer down properly before moving it.

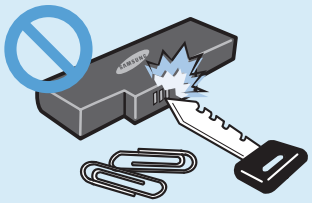


Never heat the battery or put the battery into a fire. Do not put or use the battery in a hot location such as a sauna, inside a vehicle exposed to the heat, and so on.

There is a danger of an explosion or fire.

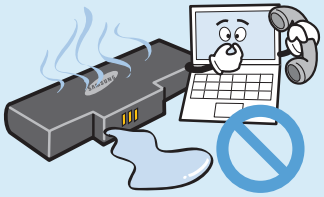
Warning

Failing to follow instructions marked with this symbol may cause personal injury and even fatality.



Take care not to allow metal objects such as a key or clip to touch the battery terminal (metal parts).

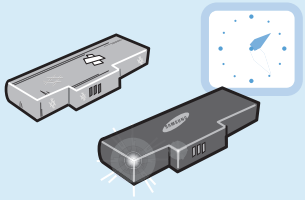
If a metal object touches the battery terminals, it may cause excessive current flow and it may damage the battery, or result in a fire.



If liquid leaks out of the battery or there is a funny smell coming from the battery, remove the battery from the computer and contact a service center.

There is a danger of an explosion or fire.

Please charge the battery fully before using the computer for the first time.

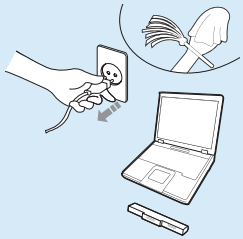


To use the computer safely, replace a dead battery with a new, authorized battery.

Warning

Failing to follow instructions marked with this symbol may cause personal injury and even fatality.

Usage Related

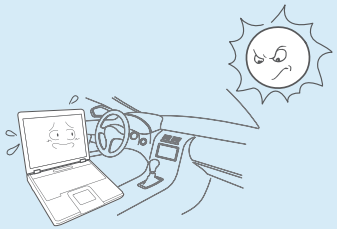


Disconnect all cables connected to the computer before cleaning it. If you are cleaning a notebook computer, remove the battery.

There is a danger of electric shock or damage to the product.

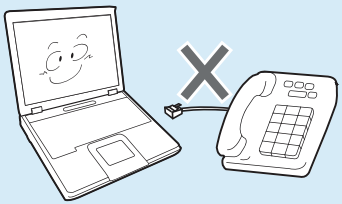
Do not place any container filled with water or chemicals over or near the computer.

If water or chemicals enter the computer, this may cause fire or electric shock.



Avoid direct sunlight when the computer is in an air-tight location such as inside a vehicle.

There is a danger of a fire hazard. The computer may overheat and also present opportunity to thieves.



Do not connect a phone line connected to a digital phone to the modem.

There is a danger of a electric shock, fire or damage to the product.

If the computer is broken or dropped, disconnect the power cord and contact a service center for a safety check.

Using a broken computer may cause electric shock or fire hazard.

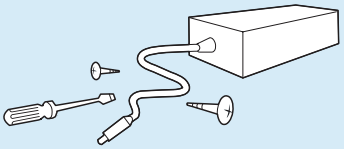
Do not use your notebook PC for long periods of time while a part of your body is making direct contact with it. The temperature of the product may increase during normal operation.

This may result in harming or burning your skin.

Warning

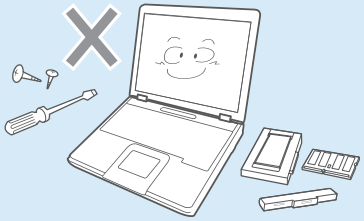
Failing to follow instructions marked with this symbol may cause personal injury and even fatality.

Upgrade Related



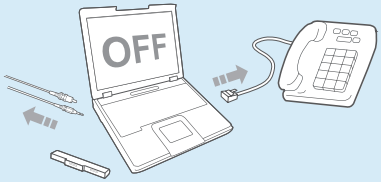
Never disassemble the power supply or AC adapter.

There is a danger of electric shock.



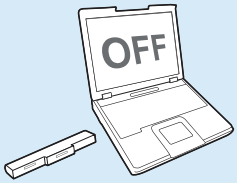
Use only authorized parts (multi-plug, battery and memory) and never disassemble parts.

There is a danger of damaging the product, electric shock or fire hazard.



Shut down the computer and disconnect all cables before disassembling the computer. If there is a modem, disconnect the phone line. If you are disassembling notebook computer, make sure to remove the battery.

Failing to do so, may cause electric shock.



When removing the RTC (Real Time Clock) battery, keep it out of the reach of children as they could touch and/or swallow it.

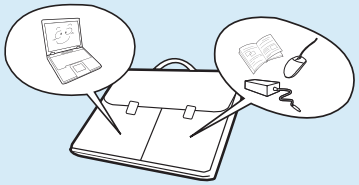
There is a danger of choking. If a child has swallowed it, contact a doctor immediately.

Warning

Failing to follow instructions marked with this symbol may cause personal injury and even fatality.

Custody and Movement Related

Follow the instructions for the relevant location (e.g. airplane, hospital, etc.) when using a wireless communication device (wireless LAN, Bluetooth, etc.).



When carrying the notebook computer with other items, such as the adapter, mouse, books etc, take care not to press anything against the notebook computer.

If a heavy object is pressed against the notebook computer, a white spot or stain may appear on the LCD. Therefore, take care not to apply any pressure to the notebook.

In this case, place the notebook computer in a separate compartment away from the other objects.

⚠ Caution

Failing to follow instructions marked with this symbol may cause slight injury or damage to the product.

Installation Related

Do not block the ports (holes), vents, etc. of the product and do not insert objects.

Damage to a component within the computer may cause electric shock or fire.

When using the computer with it lying on its side, place it so that the vents face upwards.

Failing to do so, may cause the internal temperature of the computer to rise and the computer to malfunction or halt.

Do not place a heavy object over the product.

This may cause a problem with the computer. In addition, the object may fall and cause injury, or damage the computer.

Battery Usage Related

Dispose of worn-out batteries properly.

- There is a danger of fire or explosion.
- The battery disposal method may differ depending on your country and region. Dispose of the used battery in an appropriate way.

Do not throw or disassemble the battery and do not put it into water.

This may cause an injury, fire or explosion.

Use only a battery authorized by Samsung Electronics.

Failing to do so may cause an explosion.

Avoid contact with metal objects such as car keys or clips when keeping or carrying a battery.

Contact with a metal may cause excessive current and a high temperature and may damage the battery or cause a fire.

Charge the battery according to the instructions in the manual.

Failing to do so, may cause an explosion or fire from damage to the product.

Do not heat the battery or expose it to heat (e.g. inside a vehicle during the summer).

There is a danger of explosion or fire.

⚠ Caution

Failing to follow instructions marked with this symbol may cause slight injury or damage to the product.

Usage Related

Do not place a candle, light cigar, etc. over or on the product.

There is a danger of fire.

Use a wall outlet or multi-plug with a grounding part.

Failing to do so may cause electric shock hazard.

Make sure to have the product tested by a safety service engineer after repairing the product.

Authorized Samsung Repair Centers will carry out safety checks after a repair. Using a repaired product without testing it for safety may cause an electric shock or fire.

In case of lightning, immediately turn the system off, disconnect the power cord from the wall outlet and phone line from modem. Do not use a modem or phone.

There is a danger of electric shock or fire.

Do not use your computer and AC-Adapter on your lap or soft surfaces.

If the computer temperature increases, there is a danger of burning yourself.

Connect only permitted devices to the connectors or ports of the computer.

Failing to do so, may cause electric shock and fire.

Close the LCD panel only after checking if the notebook computer is turned off.

The temperature may rise and it may cause overheating and deformation of the product.

Do not press the Eject Button while the Floppy Disk/CD-ROM drive is in operation.

You might lose data and the disk might be suddenly ejected and could cause an injury.

Take care not to drop the product while using it.

This may cause personal injury or loss of data.

Do not touch the antenna with electricity facility such as the power outlet.

There is a danger of electric shock.

When handling computer parts, follow the instructions on the manual supplied with the parts.

Failing to do so, may cause damage to the product.

⚠ Caution

Failing to follow instructions marked with this symbol may cause slight injury or damage to the product.

If the computer emits smoke, or there is a burning smell, disconnect the power plug from the wall outlet and contact a service center. If your computer is a notebook computer, make sure to remove the battery.

There is a danger of fire.

Do not use a damaged or modified CD/Floppy Disk.

There is a danger of damaging the product or personal injury.

Do not insert your fingers into the PC Card Slot.

There is a danger of injury or electric shock.

Use recommended computer cleansing solution when cleaning the product and only use the computer when it is completely dried.

Failing to do so may cause electric shock or fire.

Emergency disk eject method using paperclip should not be used while the disk is in motion. Make sure to use the emergency disk eject method only when the Optical Disk Drive is stopped.

There is a danger of injury.

Do not place your face close to the Optical Disk Drive tray when it is operating.

There is a danger of injury due to an abrupt ejection.

Check CDs for cracks and damage prior to use.

It may damage the disc and cause disorder of device and injury of user.

⚠ Caution

Failing to follow instructions marked with this symbol may cause slight injury or damage to the product.

Upgrade Related

Take care when touching the product or parts.

The device may be damaged or you may be injured.

Take care not to throw or drop a computer part or device.

This may cause injury or damage to the product.

Make sure to close the computer cover before connecting the power after a reassembly.

There is a danger of electric shock if your body touches an internal part.

Use parts authorized by Samsung Electronics only.

Failing to do so, may cause fire or damage the product.

Never disassemble or repair the product by yourself.

There is a danger of electric shock or fire.

To connect a device that is not manufactured or authorized by Samsung Electronics, enquire at your service center before connecting the device.

There is a danger of damaging the product.

Custody and Movement Related

When moving the product, turn the power off and separate all connected cables first.

The product might be damaged or users may trip over the cables.

For long periods of not using the notebook computer, discharge the battery and preserve as it is detached.

The battery will be preserved at its best condition.

Do not operate or watch the computer while driving a vehicle.

There is a danger of a traffic accident. Please concentrate on driving.

⚠ Caution

Failing to follow instructions marked with this symbol may cause slight injury or damage to the product.

Cautions on Preventing Data Loss (Hard Disk Management)

Take care not to damage the data on a hard disk drive.

- A hard disk drive is so sensitive to external impact that an external impact may cause loss of data on the surface of the disk.
- Take extra care, because moving the computer or an impact on the computer when it is turned on may damage the data of the hard disk drive.
- The company is not liable for any loss of any data caused by a customer's careless usage or bad environmental conditions.

Causes that may damage the data of a hard disk drive and the hard disk drive itself.

- The data may be lost when an external impact is applied to the disk while disassembling or assembling the computer.
- The data may be lost when the computer is turned off or reset by a power failure while the hard disk drive is operating.
- The data may be lost and irrecoverable due to a computer virus infection.
- The data may be lost if the power is turned off while running a program.
- Moving or causing an impact to the computer while the hard disk drive is operating, may cause files to be corrupted or bad sectors on the hard disk.

To prevent data loss due to damage to the hard disk drive, please backup your data frequently.

Proper Posture During Computer Use

Maintaining a proper posture during computer use is very important to prevent physical harm.

The following instructions are about maintaining a proper posture during computer use developed through human engineering. Please read and follow them carefully when using the computer.

Otherwise, the probability of (RSI: Repetitive Strain Injury) from repeated operations may increase and serious physical harm may be caused.

- The instructions in this manual have been prepared so that they can be applied within the coverage of general users.
- If the user is not included in the coverage, the recommendation is to be applied according to the user's needs.

Proper Posture

Adjust the heights of desks and chairs appropriate to your height.

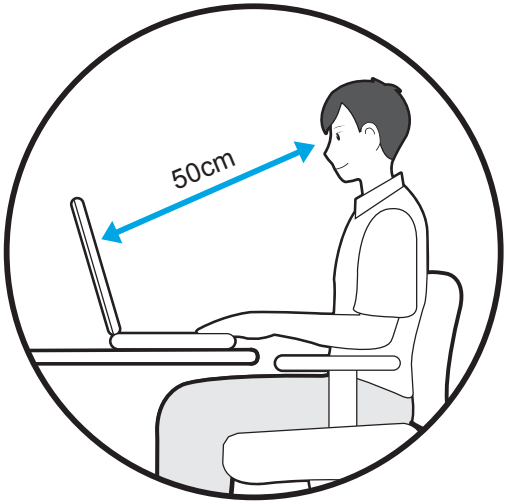
The heights are to be adjusted so that your arm forms a right angle when you place your hand over the keyboard while sitting down on a chair.

Adjust the height of chair so that your heel is comfortably placed on the floor.

- Do not use the computer while you are lying down, but only while you are sitting down.
- Do not use the computer on your lap. If the computer temperature increases, there is a danger of burning yourself.
- Work while keeping your waist straight.
- Use a chair with a comfortable back.
- Keep the center of your leg weight not on the chair but on your feet when you are sitting on a chair.
- To use the computer while talking over the telephone, use a headset. Using the computer with the phone on your shoulder is bad for posture.
- Keep frequently used items within a comfortable work range (where you can reach them with your hands).

Eye Position

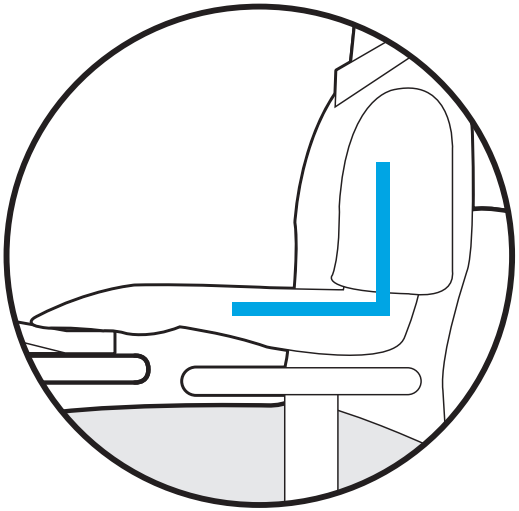
Keep the monitor or LCD away from your eyes by at least 50cm.



- Adjust the height of the monitor and the LCD screen so that its top height is equal to or lower than your eyes.
- Avoid setting the monitor and LCD excessively bright.
- Keep the monitor and LCD screen clean.
- If you wear glasses, clean them before using the computer.
- When entering contents printed on a paper into the computer, use a static paper holder so that the height of the paper is almost equal to that of the monitor.

Hand Position

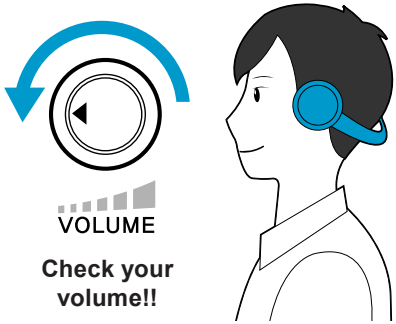
Keep your arm at a right angle as shown by the figure.



- Keep the line from your elbow to your hand straight.
- Do not place your palm over the keyboard while typing.
- Do not hold the mouse with excessive force.
- Do not press the keyboard, touchpad or mouse with excessive force.
- It is recommended connecting an external keyboard and mouse when using the computer for long periods of time.

Volume Control (Headphones and Speakers)

Check your volume first to listen to music.



- Check if the volume is too loud before using headphones.
- It is not recommended using headphones for long periods of time.
- Any deviation from the equalizer default setting could cause hearing impairment.
- The default setting can be changed through software and driver updates without your intervention. Please check the equalizer default setting before first usage.

Use Time (Break Time)

- Take a break for 10 minutes or more after a 50-minute period when working for more than one hour.

Illumination

- Do not use the computer in dark locations. The illumination level for computer use must be as bright so for reading a book.
- Indirect illumination is recommended. Use a curtain to prevent reflection on the LCD screen.

Operation Condition

- Do not use the computer in hot and humid locations.
- Use the computer within the allowed temperature and humidity range specified in the User Guide.

Important Safety Information

Safety Instructions

Your system is designed and tested to meet the latest standards for safety of information technology equipment. However, to ensure safe use of this product, it is important that the safety instructions marked on the product and in the documentation are followed.

Always follow these instructions to help guard against personal injury and damage to your system.

Setting Up your System

- Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.
- Do not use this product near water or a heat source such as a radiator.
- Set up the system on a stable work surface.
- The product should be operated only with the type of power source indicated on the rating label.
- Ensure that the electrical outlet you are using to power your equipment is easily accessible in case of fire or short circuit.
- If your computer has a voltage selector switch, make sure that the switch is in the proper position for your area.
- Openings in the computer case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space, at least 6 inches (15 cm), around the system for ventilation when you set up your work area. Never insert objects of any kind into the computer ventilation openings.
- Ensure that the fan vents on the bottom of the casing are clear at all times. Do not place the computer on a soft surface, doing so will block the bottom vents.
- If you use an extension cord with this system, make sure that the total power rating on the products plugged into the extension cord does not exceed the extension cord power rating.

Care During Use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill anything on the system. The best way to avoid spills is to not eat or drink near your system.
- Some products have a replaceable CMOS battery on the system board. There is a danger of explosion if the CMOS battery is replaced incorrectly. Replace the battery with the same or equivalent type recommended by the manufacturer.
  Dispose of batteries according to the manufacturers instructions. If the CMOS battery requires replacement insure that a qualified technician performs the task.
- When the computer is turned off, a small amount of electrical current still flows through the computer.
  To avoid electrical shock, always unplug all power cables, remove the battery and modem cables from the wall outlets before cleaning the system.
- Unplug the system from the wall outlet and refer servicing to qualified personnel if:
  – The power cord or plug is damaged.
  – Liquid has been spilled into the system.
  – The system does not operate properly when the operating instructions are followed.
  – The system was dropped or the casing is damaged.
  – The system performance changes.

The Instruction On Safety Operation of NotePC

❶ When installing and operating devices please refer to safety requirements in the user guide.

❷ Devices can be used only with the equipment specified in the technical specifications of the devices.

❸ If any smell of burning or smoke is detected from the computer the unit should be switched off and battery removed. The unit should be checked by a qualified technician before reuse.

❹ Service and repair of devices should be carried out by authorized service centers.

❺ Do not allow your portable computer to operate with the base resting directly on exposed skin for extended periods of time. The surface temperature of the base will rise during normal operation (particularly when AC Power is present). Allowing sustained contact with exposed skin can cause discomfort or eventually a burn.

Replacement Parts and Accessories

Use only replacement parts and accessories recommended by manufacturer.

To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

Do not use this product in areas classified as hazardous. Such areas include patient care areas of medical and dental facilities, oxygen rich environments, or industrial areas.

Battery Disposal

Do not put rechargeable batteries or products powered by non-removable rechargeable batteries in the garbage.

Contact the Samsung Helpline for information on how to dispose of batteries that you cannot use or recharge any longer.

Follow all local regulations when disposing of old batteries.

THERE IS A RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Laser Safety

All systems equipped with CD or DVD drives comply with the appropriate safety standards, including IEC 60825-1. The laser devices in these components are classified as “Class 1 Laser Products” under a US Department of Health and Human Services (DHHS) Radiation Performance Standard. Should the unit ever need servicing, contact an authorized service location.

- **Laser Safety Note:**

  Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure. To prevent exposure to laser beams, do not try to open the enclosure of a CD or DVD drive.
- Class 1M laser radiation when operating part is open.

  Do not view directly with optical instruments.
- Class 3B invisible laser radiation when open.

  Avoid exposure to the beam.

Connect and Disconnect the AC adapter

The socket-outlet shall be installed near the equipment and shall be easily accessible.

Do not unplug the power cord out by pulling the cable only.

Power Cord Requirements

The power cord set (wall plug, cable and AC adapter plug) you received with your computer meets the requirements for use in the country where you purchased your equipment.

Power cord sets for use in other countries must meet the requirements of the country where you use the computer. For more information on power cord set requirements, contact your authorized dealer, reseller, or service provider.

General Requirements

The requirements listed below are applicable to all countries:

- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
- The power cord set must have a minimum current capacity of 7 A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system. (USA ONLY)
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C7(or C5) connector, for mating with appliance inlet on the computer.

Regulatory Compliance Statements

Wireless Guidance

(If fitted with 2.4G band or 5G band)

Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4GHz/ 5GHz Band, may be present (embedded) in your notebook system. The following section is a general overview of considerations while operating a wireless device.

Additional limitations, cautions, and concerns for specific countries are listed in the specific country sections (or country group sections). The wireless devices in your system are only qualified for use in the countries identified by the Radio Approval Marks on the system rating label. If the country you will be using the wireless device in, is not listed, please contact your local Radio Approval agency for requirements. Wireless devices are closely regulated and use may not be allowed.

The RF field strength of the wireless device or devices that may be embedded in your notebook are well below all international RF exposure limits as known at this time. Because the wireless devices (which may be embedded into your notebook) emit less energy than is allowed in radio frequency safety standards and recommendations, manufacturer believes these devices are safe for use. Regardless of the power levels, care should be taken to minimize human contact during normal operation.

As a general guideline, a separation of 20 cm (8 inches) between the wireless device and the body, for use of a wireless device near the body (this does not include extremities) is typical. This device should be used more than 20 cm (8 inches) from the body when wireless devices are on and transmitting.

Some circumstances require restrictions on wireless devices. Examples of common restrictions are listed on the next page:

- Radio frequency wireless communication can interfere with equipment on commercial aircraft. Current aviation regulations require wireless devices to be turned off while traveling in an airplane.
  802.11ABGN (also known as wireless Ethernet or Wifi) and Bluetooth communication devices are examples of devices that provide wireless communication.
- In environments where the risk of interference to other devices or services is harmful or perceived as harmful, the option to use a wireless device may be restricted or eliminated. Airports, Hospitals, and Oxygen or flammable gas laden atmospheres are limited examples where use of wireless devices may be restricted or eliminated. When in environments where you are uncertain of the sanction to use wireless devices, ask the applicable authority for authorization prior to use or turning on the wireless device.
- Every country has different restrictions on the use of wireless devices. Since your system is equipped with a wireless device, when traveling between countries with your system, check with the local Radio Approval authorities prior to any move or trip for any restrictions on the use of a wireless device in the destination country.
- If your system came equipped with an internal embedded wireless device, do not operate the wireless device unless all covers and shields are in place and the system is fully assembled.
- Wireless devices are not user serviceable. Do not modify them in any way. Modification to a wireless device will void the authorization to use it. Please contact manufacturer for service.
- Only use drivers approved for the country in which the device will be used. See the manufacturer System Restoration Kit, or contact manufacturer Technical Support for additional information.

United States of America

USA and Canada Safety Requirements and Notices

Do not touch or move antenna while the unit is transmitting or receiving.

Do not hold any component containing the radio such that the antenna is very close or touching any exposed parts of the body, especially the face or eyes, while transmitting.

Do not operate the radio or attempt to transmit data unless the antenna is connected; if not, the radio may be damaged.

Use in specific environments:

The use of wireless devices in hazardous locations is limited by the constraints posed by the safety directors of such environments.

The use of wireless devices on airplanes is governed by the Federal Aviation Administration (FAA).

The use of wireless devices in hospitals is restricted to the limits set forth by each hospital.

Explosive Device Proximity Warning

Do not operate a portable transmitter (such as a wireless network device) near unshielded blasting caps or in an explosive environment unless the device has been modified to be qualified for such use.

Use On Aircraft Caution

Regulations of the FCC and FAA prohibit airborne operation of radio-frequency wireless devices because their signals could interfere with critical aircraft instruments.

Other Wireless Devices

Safety Notices for Other Devices in the Wireless Network: Refer to the documentation supplied with wireless Ethernet adapters or other devices in the wireless network.

The Part 15 radio device operates on a non-interference basis with other devices operating at this frequency. Any changes or modification to said product not expressly approved by Intel could void the user's authority to operate this device.

Unintentional Emitter per FCC Part 15

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet helpful: “Something About Interference.”

This is available at FCC local regional offices. Our company is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by our company. The correction will be the responsibility of the user. Use only shielded data cables with this system.

Intentional emitter per FCC Part 15

(If fitted with 2.4G band or 5G band)

Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4GHz/5GHz Band, may be present (embedded) in your notebook system. This section is only applicable if these devices are present. Refer to the system label to verify the presence of wireless devices.

Wireless devices that may be in your system are only qualified for use in the United States of America if an FCC ID number is on the system label.

This device is restricted to indoor use due to its operation in the 5.15 to 5.25 GHz frequency range. FCC requires this product to be used indoors for the frequency range 5.15 to 5.25 GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems. High power radars are allocated as primary users of the 5.25 to 5.35 GHz and 5.65 to 5.85 GHz bands. These radar stations can cause interference with and /or damage this device.

The FCC has set a general guideline of 20 cm (8 inches) separation between the device and the body, for use of a wireless device near the body (this does not include extremities). This device should be used more than 20 cm (8 inches) from the body when wireless devices are on. The power output of the wireless device (or devices), which may be embedded in your notebook, is well below the RF exposure limits as set by the FCC.

This transmitter must not be collocated or operate in conjunction with any other antenna or transmitter except the installed Bluetooth transmitter.

Operation of this device is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

Wireless devices are not user serviceable. Do not modify them in any way.

Modification to a wireless device will void the authorization to use it. Contact manufacturer for service.

FCC Statement for Wireless LAN use:

“While installing and operating this transmitter and antenna combination the radio frequency exposure limit of 1mW/cm2 may be exceeded at distances close to the antenna installed. Therefore, the user must maintain a minimum distance of 20cm from the antenna at all times.

This device can not be colocated with another transmitter and transmitting antenna.”

FCC Part 68
(If fitted with a modem device.)

This equipment compiles with part of the FCC rules. On the back of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

This equipment uses the following USOC jacks : RJ11C

An FCC compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or promises wiring using a compatible modular jack which is Part 68 compliant. See Installation Instructions for details.

The REN is used to determine the quantity of devices which may be connected to telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by total RENs, contact the local telephone company to determine the maximum REN for the calling area.

If the terminal equipment causes harm to the telephone network, the Telephone Company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advanced notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment (Modem) for repair or warranty information, please contact your local distributor. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

The user must use the accessories and cables supplied by the manufacturer to get optimum performance from the product.

No repairs may be done by the customer.

This equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be any number for which charges exceed local or long-distance transmission charges.)

In order to program this information into your fax machine, refer to your communications software user manual.

Canada

Unintentional Emitter per ICES-003

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limitesapplicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

Intentional Emitter per RSS 210

(If fitted with 2.4G band or 5G band)

Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4GHz/5GHz Band, may be present (embedded) in your notebook system. This section is only applicable if these devices are present. Refer to the system label to verify the presence of wireless devices.

Wireless devices that may be in your system are only qualified for use in Canada if an Industry Canada ID number is on the system label.

When using IEEE 802.11a wireless LAN, this product is restricted to indoor use due to its operation in the 5.15- to 5.25-GHz frequency range. Industry Canada requires this product to be used indoors for the frequency range of 5.15 GHz to 5.25 GHz to reduce the potential for harmful interference to co-channel mobile satellite systems. High power radar is allocated as the primary user of the 5.25- to 5.35-GHz and 5.65 to 5.85-GHz bands. These radar stations can cause interference with and/or damage to this device.

The maximum allowed antenna gain for use with this device is 6dBi in order to comply with the E.I.R.P limit for the 5.25- to 5.35 and 5.725 to 5.85 GHz frequency range in point-to-point operation.

As a general guideline, a separation of 20 cm (8 inches) between the wireless device and the body, for use of a wireless device near the body (this does not include extremities) is typical. This device should be used more than 20 cm (8 inches) from the body when wireless devices are on.

The power output of the wireless device (or devices), which may be embedded in your notebook, is well below the RF exposure limits as set by Industry Canada.

This transmitter must not be collocated or operate in conjunction with any other antenna or transmitter except the installed Bluetooth transmitter.

Operation of this device is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

To prevent radio interference to licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Wireless devices are not user serviceable. Do not modify them in any way. Modification to a wireless device will void the authorization to use it. Contact manufacturer for service.

Telecommunications per DOC notice
(for products fitted with an IC-compliant modem)

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operation, and safety requirements. The Department does not guarantee the equipment will operate to the users' satisfaction.

Before installing this equipment, users should make sure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should make sure, for their own protection, that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

To avoid electrical shock or equipment malfunction do not attempt to make electrical ground connections by yourself. Contact the appropriate inspection authority or an electrician, as appropriate.

The **Ringer Equivalence Number** (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

European Union

European Union CE Marking and Compliance Notices

Products intended for sale within the European Union are marked with the Conformité Européene (CE) Marking, which indicates compliance with the applicable Directives and European standards and amendments identified below. This equipment also carries the Class 2 identifier.

The following information is only applicable to systems labeled with the CE mark CE.

European Directives

This Information Technology Equipment has been tested and found to comply with the following European directives:

- EMC Directive 2004/108/EC
- Low Voltage Directive 2006/95/EC
- R&TTE Directive 1999/5/EC

Manufacturer Information

Samsung Electronics Co., Ltd.

416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, 443-742, Korea

Samsung Electronics Suzhou Computer Co., Ltd.

No. 198, Fangzhou Road, Suzhou Industrial Park, Jiangsu Province, 215021, China

Tel:+86-512-6253-8988

For the web or the phone number of Samsung Service Centre, see the Warranty or contact the retailer where you purchased your product.

European Radio Approval Information

(for products fitted with EU-approved radio devices)

This Product is a Notebook computer; low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4GHz/5GHz band, may be present (embedded) in your notebook system which is intended for home or office use. This section is only applicable if these devices are present. Refer to the system label to verify the presence of wireless devices.

Wireless devices that may be in your system are only qualified for use in the European Union or associated areas if a CE mark CE with a Notified Body Registration Number and the Alert Symbol is on the system label.

The power output of the wireless device or devices that may be embedded in you notebook is well below the RF exposure limits as set by the European Commission through the R&TTE directive.

The low band 5.15 - 5.35 GHz is for indoor use only.

> **!** See 802.11b and 802.11g restrictions for specific countries or regions within countries under the heading “European Economic Area Restrictions” below.

EU R&TTE Compliance Statements

cs	**Česky [Czech]**	Samsung tímto prohlašuje, že tento Notebook PC je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
da	**Dansk [Danish]**	Undertegnede Samsung erklærer herved, at følgende udstyr Notebook PC overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
de	**Deutsch [German]**	Hiermit erklärt Samsung, dass sich das Gerät Notebook PC in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
et	**Eesti [Estonian]**	Käesolevaga kinnitab Samsung seadme Notebook PC vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
en	**English**	Hereby, Samsung, declares that this Notebook PC is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
es	**Español [Spanish]**	Por medio de la presente Samsung declara que el Notebook PC cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
el	**Ελληνική [Greek]**	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Samsung ΔΗΛΩΝΕΙ ΟΤΙ Notebook PC ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
fr	**Français [French]**	Par la présente Samsung déclare que l'appareil Notebook PC est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
it	**Italiano [Italian]**	Con la presente Samsung dichiara che questo Notebook PC è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
lv	**Latviski [Latvian]**	Ar šo Samsung deklarē, ka Notebook PC atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
lt	**Lietuvių [Lithuanian]**	Šiuo Samsung deklaruoja, kad šis Notebook PC atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
nl	**Nederlands [Dutch]**	Hierbij verklaart Samsung dat het toestel Notebook PC in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
mt	**Malti [Maltese]**	Hawnhekk, Samsung, jiddikjara li dan Notebook PC jikkonforma mal-ħtiāijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
hu	**Magyar [Hungarian]**	Alulírott, Samsung nyilatkozom, hogy a Notebook PC megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
pl	**Polski [Polish]**	Niniejszym Samsung oświadcza, Ŝe Notebook PC jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
pt	**Português [Portuguese]**	Samsung declara que este Notebook PC está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

sl	**Slovensko [Slovenian]**	Samsung izjavlja, da je ta Notebook PC v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
sk	**Slovensky [Slovak]**	Samsung týmto vyhlasuje, že Notebook PC spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
fi	**Suomi [Finnish]**	Samsung vakuuttaa täten että Notebook PC tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
sv	**Svenska [Swedish]**	Härmed intygar Samsung att denna Notebook PC står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
	Íslenska [Icelandic]	Hér með lýsir Samsung yfir því að Notebook PC er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC.
no	**Norsk [Norwegian]**	Samsung erklærer herved at utstyret Notebook PC er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.
	Türkiye [Türkçe]	Bu belge ile, Samsung bu Notebook PC'nin 1999/5/EC Yönetmeliğinin temel gerekliliklerine ve ilgili hükümlerine uygun olduğunu beyan eder.

To view the EU Declaration of Conformity for this product (in English only), go to: http://www.samsung.com/uk/support/download/supportDownMain.do then search the model number of the product.

If the Declaration of Conformity for the model you are interested in is not available on our web-site, please contact your distributor.

European Economic Area Restrictions

Local Restriction of 802.11b/802.11g Radio Usage

[Note to integrator: The following statements on local restrictions must be published in all end-user documentation provided with the system or product incorporating the wireless product.]

Due to the fact that the frequencies used by 802.11b/802.11g wireless LAN devices may not yet be harmonized in all countries, 802.11b/802.11g products are designed for use only in specific countries or regions, and are not allowed to be operated in countries or regions other than those of designated use.

As a user of these products, you are responsible for ensuring that the products are used only in the countries or regions for which they were intended and for verifying that they are configured with the correct selection of frequency and channel for the country or region of use. Any deviation from permissible settings and restrictions in the country or region of use could be an infringement of local law and may be punished as such.

The European variant is intended for use throughout the European Economic Area. However, authorization for use is further restricted in particular countries or regions within countries, as follows:

General

European standards dictate maximum radiated transmit power of 100 mW effective isotropic radiated power (EIRP) and the frequency range 2400 – 2483.5 MHz.

The low band 5.15 - 5.35 GHz is for indoor use only.

Belgium

The product may be used outdoors, but for outdoor transmissions over a distance of 300m or more, a license from the BIPT is required.

This restriction should be indicated in the manual as follows:

Dans le cas d'une utilisation privée, à l'extérieur d'un bâtiment, au-dessus d'un espace public, aucun enregistrement n'est nécessaire pour une distance de moins de 300m. Pour une distance supérieure à 300m un enregistrement auprès de l'IBPT est requise. Pour une utilisation publique à l'extérieur de bâtiments, une licence de l'IBPT est requise. Pour les enregistrements et licences, veuillez contacter l'IBPT.

France

For Metropolitan departments:

2.400 - 2.4835 GHz for indoor use.

2.400 - 2.454 GHz (channels 1 to 7) for outdoor use.

For Guadeloupe, Martinique, St Pierre et Miquelon, Mayotte:

2.400 - 2.4835 GHz for indoor and outdoor use.

For Reunion, Guyane:

2.400 - 2.4835 GHz for indoor use.

2.420 - 2.4835 GHz for outdoor use (channels 5 to 13)

The low band 5.15 - 5.35 GHz is for indoor use only.

European Telecommunication Information

(for products fitted with EU-approved modems)

Marking by the symbol CE indicates compliance of this equipment to the Radio and Telecom Terminal Equipment Directive 1999/5/EC. Such marking is indicative that this equipment meets or exceeds the following technical standards:

CTR 21 - Attachment requirements for pan-European approval for connection to the analogue Public Switched Telephone Networks (PSTNs) of TE (excluding TE supporting voice telephony services) in which network addressing, if provided, is by means of Dual Tone Multi-Frequency (DTMF) signaling.

Although this equipment can use either loop disconnect (pulse) or DTMF (tone) signaling, only the performance of the DTMF signaling is subject to regulatory requirements for correct operation.

It is therefore strongly recommended that the equipment is set to use DTMF signaling for access to public or private emergency services. DTMF signaling also provides faster call setup.

This equipment has been approved to Council Decision 98/482/EEC - "CTR 21" for Pan-European single terminal connection to the Public Switched Telephone Network (PSTN).

However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN termination point. In the event of problems, you should contact manufacturer Technical Support.

WEEE SYMBOL INFORMATION

Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems.)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material re-use, please separate batteries from other types of waste and recycle them through your local, free battery return system.

USA ONLY

This Perchlorate warning applies only to primary CR (Maganese Dioxide) Lithium coin cells in the product sold or distributed ONLY in California USA.

“Perchlorate Material- special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate.”

Contains Mercury, Dispose According to Local, State or Federal Laws.

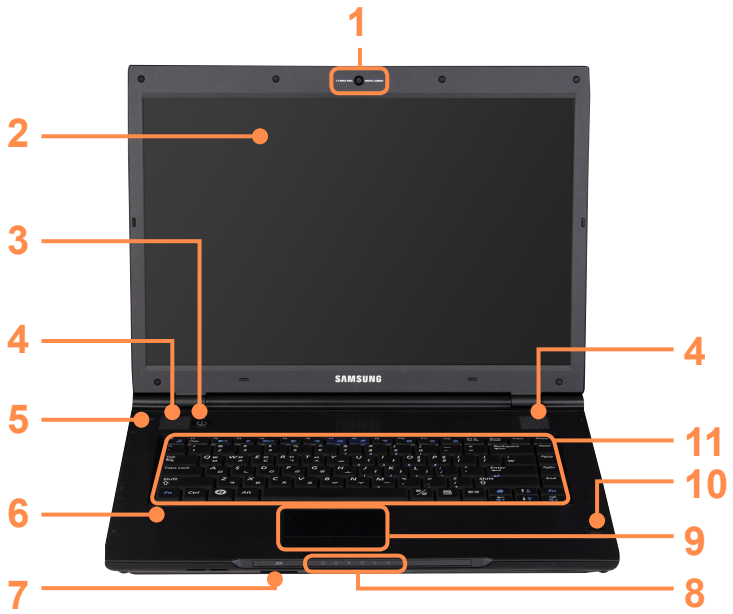
For details see lamprecycle.org, eise.org, or call 1-800-Samsung.

Overview

Front View

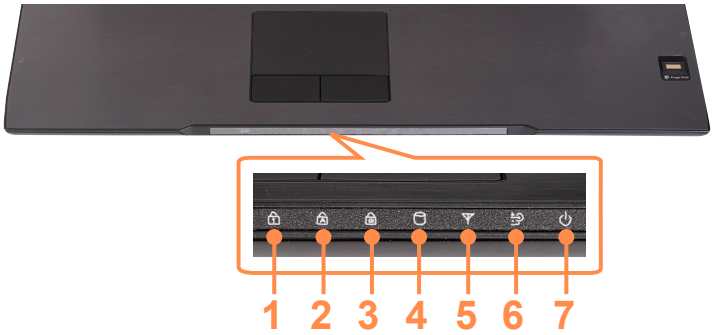
Before You Start!

- Optional items may be changed or may not be provided depending on the computer model.
- The actual color and appearance of the computer may differ from the pictures used in this guide.



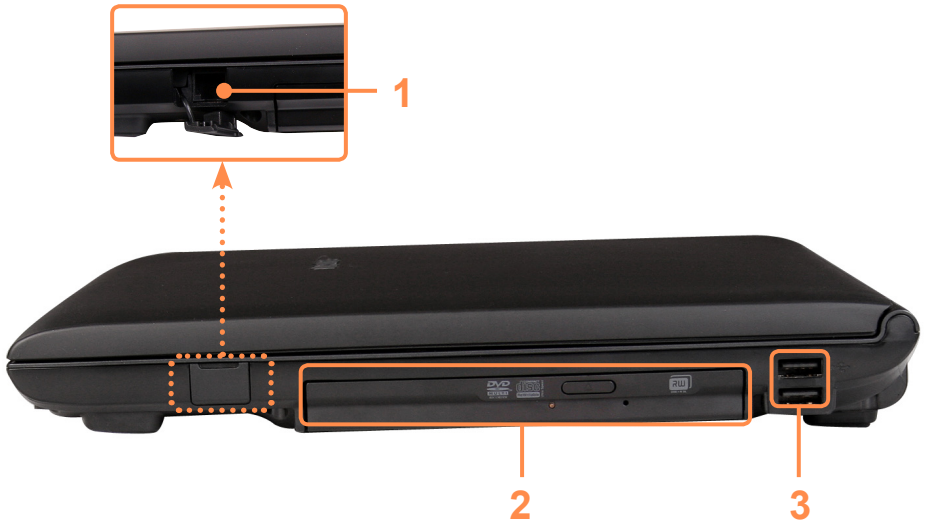
1	**Camera Lens (Optional)**	Using this lens, you can take still pictures and record video.
2	**LCD**	The screen images are displayed here.
3	**Power Button**	Turns the computer on and off.
4	**Speaker**	A device used to generate sound.
5	**Ambient Light Sensor (Optional)**	A light-sensitive electronic component used to adjust the brightness of a LCD display's backlight.
6	**Microphone (Optional)**	You can use the built-in microphone for sound input.
7	**Multi Card Slot (Optional)** SD	A card slot that supports SD Card, SDHC, MMC.
8	**Status Indicators**	Shows the operating status of the computer. The corresponding operating LED is lit when the corresponding function operates.
9	**Touchpad/Touchpad Buttons**	The touchpad and touchpad buttons provide functions similar to the mouse ball and buttons.
10	**Fingerprint Sensor (Optional)**	You can turn the computer on with your fingerprint or login to Windows. For more information, refer to the additionally supplied manual. (Only for models with the fingerprint identification system.)
11	**Keyboard**	A device to enter data by pressing the keys.

Status Indicators



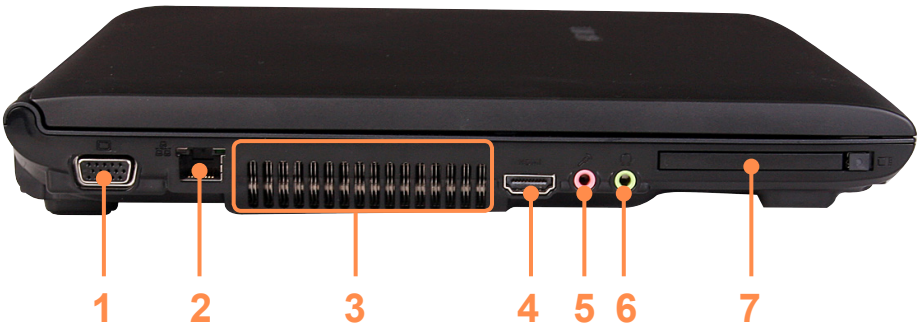
1	**Num Lock**	This turns on when the Num Lock key is pressed and numeric keypad is activated.
2	**Caps Lock**	This turns on when the Caps Lock key is pressed allowing capital letters to be typed without holding the Shift button down.
3	**Scroll Lock**	This turns on when the Scroll Lock key is pressed and screen scroll is locked.
4	**HDD**	This turns on when the hard disk is being accessed.
5	**Wireless LAN**	This turns on when the wireless LAN is operating.
6	**Charge Status**	This shows the power source and the battery charge status. **Green**: When the battery is fully charged or the battery is not installed. **Amber**: When the battery is being charged. **Off**: When the computer is running on battery power without being connected to AC adapter.
7	**Power**	This shows the computer operating status. **On** : When the computer is operating **Blinks**: When the computer is in Sleep mode.

Right View



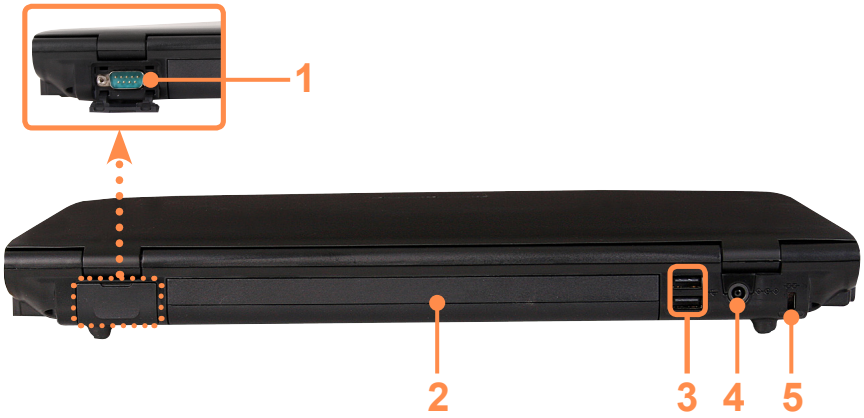
1	**Modem Port (Optional)**	A port to which a telephone cable is connected to in order to dial up to the Internet. To use the modem port, open up the rubber cap on the port.
2	**CD Drive(ODD) (Optional)**	Plays CD or DVD titles. Since an ODD(Optical Disk Drive) is optional, the installed drive depends on the computer model.
3	**USB Port**	You can connect USB devices to the USB port such as a keyboard/mouse, digital camera, etc.

Left View



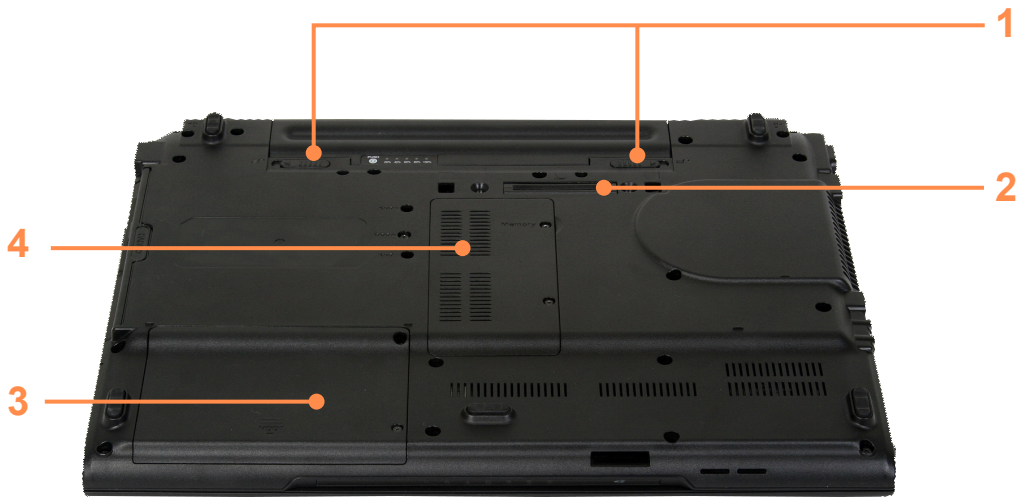
1	**Monitor Port**	A port used to connect a monitor, TV or projector supporting a 15pin D-SUB interface.
2	**Wired LAN Port**	Connect the Ethernet cable to this port.
3	**Fan Vents**	The internal heat of the computer is emitted through these holes. If the vents are blocked the computer may overheat. Avoid blocking the vents as this may be dangerous.
4	**Digital Video/Audio Port (HDMI) (Optional)**	You can connect an HDMI cable to this port. Using this port, you can enjoy digital video and audio on the TV.
5	**Microphone Jack**	jack used to connect the microphone.
6	**Headphone Jack**	A jack used to connect the headphones.
7	**PC Card Slot (Optional)**	Install the PC card into this slot.

Back View



1	**Serial Port (Optional)**	You can connect a serial device to the serial port. To use the serial port, open up the rubber cap on the port.
2	**Battery**	This is a Lithium-Ion rechargeable battery that supplies power to the computer.
3	**USB Port**	You can connect USB devices to the USB port such as a keyboard/mouse, digital camera, etc.
4	**DC Jack**	A jack to connect the AC adapter that supplies power to the computer.
5	**Security Lock Port**	You can connect a Kensington lock to the Security Lock Port to prevent the computer from being stolen.

Bottom View



1	**Battery Latches**	The latch used to remove or install the battery.
2	**P-Dock Connector (Optional)**	You can connect a Docking Station that provides additional ports.
3	**Hard Disk Drive Compartment Cover**	The hard disk drive is installed inside the cover.
4	**Memory Compartment Cover**	The main memory is installed inside the cover.

Turning the Computer On and Off

Turning the computer on

1 Install the **battery** and connect the **AC adapter**.

2 Lift the LCD panel up.

3 Press the **Power button** to turn the computer on.

4 **Power button** LED is lit while the computer is turned on.

- If you press and release the Power button on the computer when it is on, the computer enters Sleep mode.
- When running the computer on battery power, the LCD brightness is dimmed automatically to save battery power.
  Press the **Fn+** key to increase the LCD brightness.
- When turning the computer on for the first time, the Register Windows screen appears. You can use the computer after registering your user information.

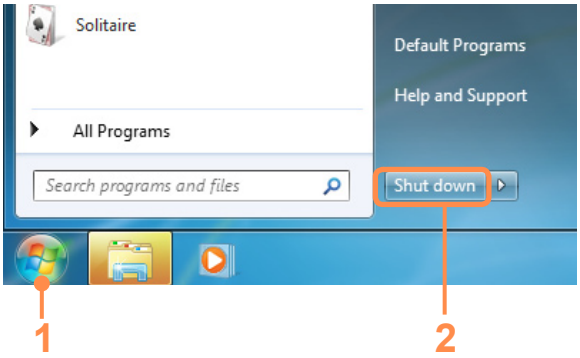
Turning the computer off

Since the procedures to turn the computer off may differ depending on the installed operating system, please turn the computer off according to the procedures for the purchased operating system.

1 Click the **Start** button on the taskbar.

2 ▶ **For Windows 7**

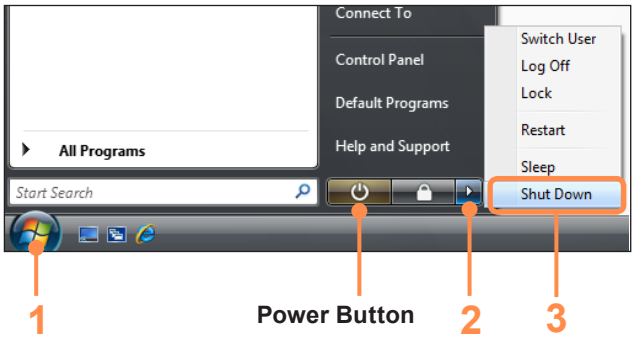
Click **Shut Down** Shut down to shut down the computer.



Save all your data before clicking on **Shut Down**.

▶ **For Windows Vista**

Click on **Start** > and then click on **Shut Down** as shown in the figure below to shut the computer down.



Using the Power button in Windows Vista

For Windows Vista, the Power button is set to power saving mode. Therefore, if you click **Start > Power button** , the computer enters **power saving mode**.

To shut down the computer by clicking this icon, refer to the descriptions for Setting up Start menu power button of the Control Panel.

If the system cannot be shut down due to a system error, turn it off by pressing and holding the Power Button for a minimum of 4 seconds.

Please note that turning the computer off by this method may cause a system problem. Thereafter, when turning the computer back on, the disk checking program may launch to check for and correct any disk errors.

Chapter 2.

Using the computer

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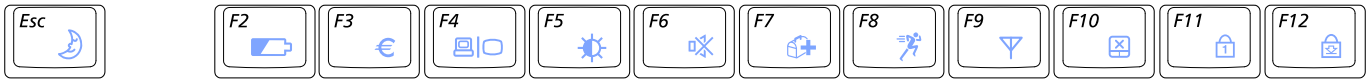
Keyboard

Shortcut key functions and procedures are discussed in the following sections.

- The keyboard is supplied according to the corresponding country.
- The keyboard may differ depending on your country. The following mainly describes the shortcut keys.

Shortcut Keys

You can use the following functions by pressing the keys below with the **Fn** key.



Fn+	Name	Function
Esc	**REST (Sleep Mode)**	Switches to Sleep mode. To wake the computer up, press the Power button.
F2	**Gauge**	Shows the remaining battery charge. You can only use this function when the Easy Display Manager program is installed.
F3	**Euro**	Enters the Euro monetary unit symbol. This key may not be provided depending on the keyboard type.
F4	**CRT/LCD**	Switches the screen output to the LCD or external monitor when an external monitor (or TV) is connected to the computer.
F5	**Backlight**	Turns the LCD backlight on or off.
F6	**Mute**	Mutes or cancels mute.
F7	**Samsung Support Center**	System diagnosis, recovery and Internet consultation program, Samsung Support Center, will be launched. (Optional) For some models, **Samsung Magic Doctor** is launched

Fn+	Name	Function
	Easy SpeedUp Manager	You can select operation mode when you need maximum system performance or low-noise/low power consumption with one-click. ● **Silent:** Low-noise and low power consumption mode ● **Normal:** Normal Mode ● **Speed:** Maximum performance mode. The system operates in its maximum performance, and system resources are allocated to the currently active program with priority for maximum performance.
	Wireless LAN	Turns the wireless LAN function on or off in models with wireless LAN capability.
	Touchpad	Turns the Touchpad function on or off. When using an external mouse only, you can turn the Touchpad off.
	Num Lock	Turns the numeric keyboard on or off.
	Scroll Lock	If you turn the Scroll Lock on, you can scroll the screen up or down without changing the cursor location in some applications.

Screen Brightness Control

To adjust the LCD brightness press the **Fn** + key combination or the **Fn** + key combination.

The changed screen brightness is displayed at the center of the screen for a moment.

Volume Control

To control the volume, press the **Fn** + key combination or the **Fn** + key combination.

You can mute the sound or cancel the mute function by clicking the **Fn** + key combination.

Numeric Key

The numbers are printed in blue on the numeric keys.

If Num Lock is turned on by pressing the **Fn** + key combination, you can use the numeric keys to enter digits.

Other Function Keys

- **Application Key**
  Performs the right-click mouse function (touchpad).

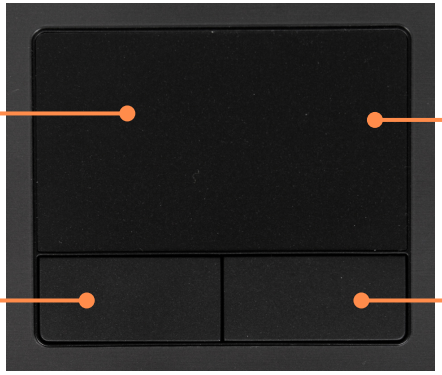
- **Internet Explorer Quick Launch Key : (Fn+)**
  Launches Internet Explorer.

Touchpad

The touchpad provides the same function as a mouse and the left and right buttons of the touchpad plays the role of the left and right buttons of a mouse.

Before You Start!

- Use the Touchpad with your fingers. Using a sharp object may damage the Touchpad.
- If you touch the Touchpad or press the Touchpad buttons while booting up, the Windows boot time may be extended.



Touchpad

Use to move the cursor.

Scroll Area

Plays the role of the mouse wheel. You can scroll up and down using the Scroll Area.

Touchpad Left Button

You can select or run a program using this button.

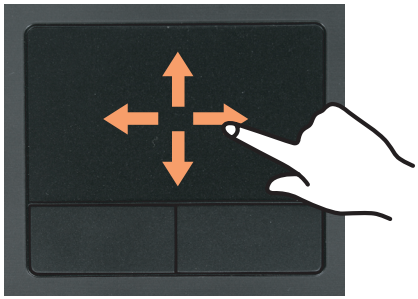
Touchpad Right Button

Plays the role of the right mouse button.

Moving the cursor on the screen

Place your finger on the touchpad slightly and move your finger.

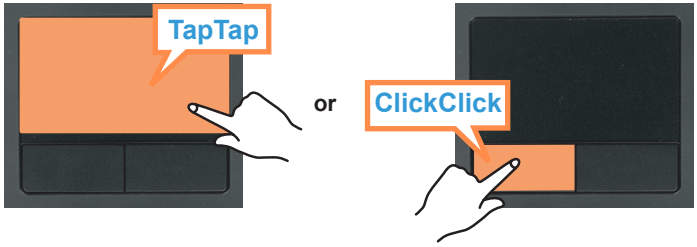
The mouse cursor will move accordingly. Move your finger in the direction you wish to move the cursor.



Double-Click Function

Put your finger on the touchpad and quickly tap twice with your finger on an item you want.

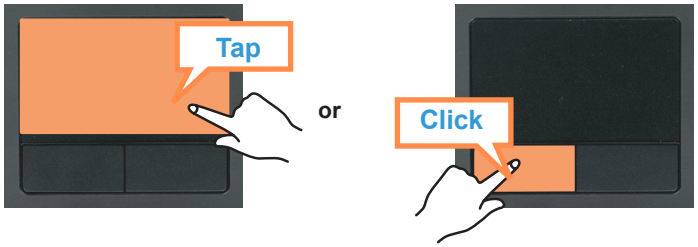
Alternatively, press the left touchpad button twice quickly.



Click Function

Place your finger on the touchpad and tap your finger once over an item you want.

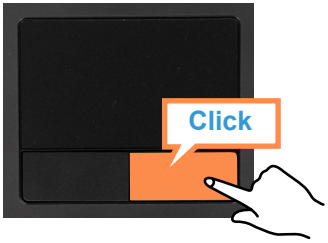
Alternatively, press the left touchpad button once.



Right Button Function

This corresponds to clicking the right mouse button.

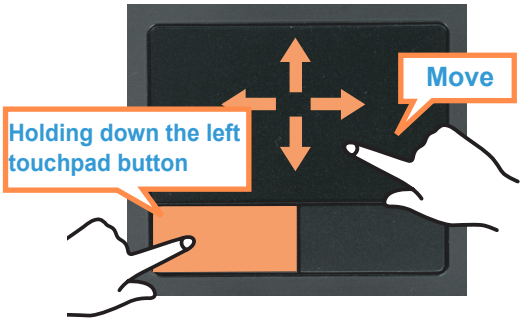
Press the right touchpad button once. The corresponding pop-up menu appears.



Drag Function

Dragging refers to moving an item to another place after selecting it.

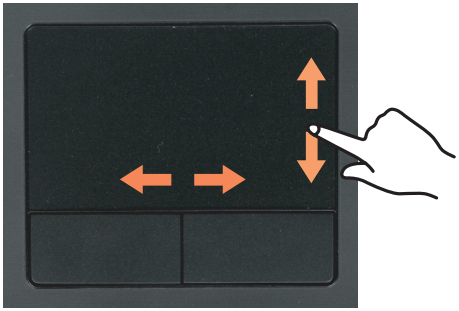
Press and hold down the left touchpad button over an item you want to drag and move the item to the new location.



Touchpad Scroll Function

The touchpad scroll area provides the mouse wheel function (scroll function).

Place your finger on the touchpad's right edge for vertical scrolling or the bottom edge for horizontal scrolling and then move your finger along the edge to scroll the screen vertically or horizontally.



Touchpad On/Off Function

If you want to use the mouse only without using the touchpad, you can turn the touchpad off.

To lock the touchpad function, press the **Fn** + keys.

You can set the touchpad and touchpad button settings in the tabs that appear when clicking **Start > Control Panel > Hardware and Sound > Mouse**.

CD Drive (ODD, Optional)

An optical disk drive is optional and may differ depending on your computer model. For detailed specifications, refer to the catalogue.

- Do not insert a cracked or scratched CD.
  Otherwise, the CD may break and damage the optical disk drive when the CD rotates at a high speed.
- When you clean a CD or DVD title, wipe with a soft cloth from inside to outside.
- Insert a Mini CD into the center of the CD drive.
- The figures used for the description are of a representative model. Therefore the figures may differ from the real ones.
- Using a CD that is not in the shape of a circle is not recommended.

Inserting and Ejecting a CD

1 Click the **Eject** button of the optical disk drive at the side of the computer.

2 When the CD tray opens, insert a CD or DVD and push the tray in until it clicks.

3 Push the CD tray inward until it clicks.
The CD drive status indicator is turned on.

- A CD drive's reading and writing speed may differ depending on the condition and type of the media.
- To eject a CD when the CD drive does not work or the computer is off, place the end of a paper clip ( ) into the Emergency Hole until the CD tray is ejected.

Multi Card Slot (Optional)

Using the multi card slot, you can read and write data to a SD card, SDHC card, MMC card.

You can use a card as a removable disk and conveniently exchange data with digital devices such as a digital camera, digital camcorder, MP3, etc..

Before You Start!

- You have to additionally purchase a multi card with the necessary capacity depending on your requirements.
- You can use a multi card just like any data storage device. A copyright protection function is not supported.
- Since you can lose a card when moving the computer, keep the card separately.
- Supported Cards : SD Card, SDHC card, MMC
- The figures used for the description are of a representative model. Therefore the figures may differ from the real ones.

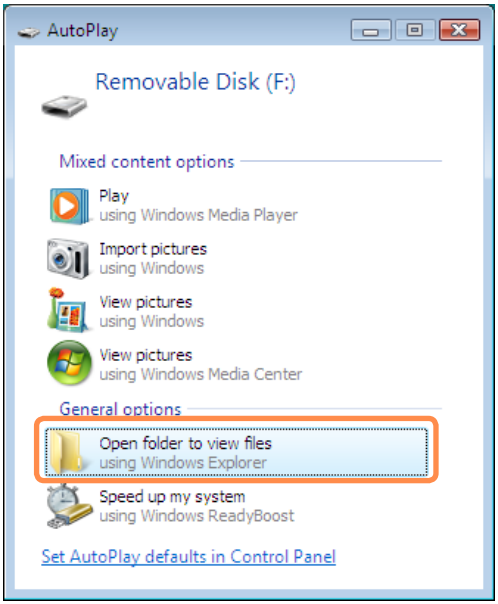
To Insert and Use a Memory Card

1 Insert a card into the slot according to the directions printed on the slot.

Example) SD Card

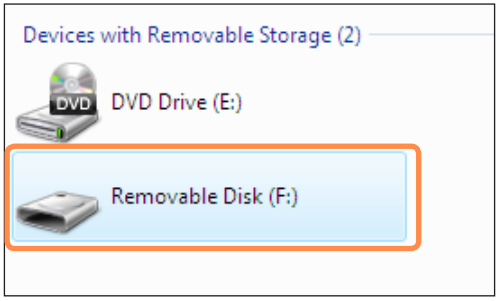
2 The card drive appears. Click **Open folder and view files**.

If the window does not appear, click **Start > Computer**.



If a window asking to scan and change appears, click **Continue Without Scanning**. This will proceed to Step 2 above.

3 You can save, move and delete data by double-clicking the corresponding drive.



The device name of the card drive may differ depending on your computer model.

You can only use the card after formatting it.

Using a Mini SD and RS-MMC

Since the above cards are too small, you cannot insert the cards into the slot directly.

Insert the card into the dedicated adapter (available from most electronic retailers) and then insert the adapter into the multi card slot.

However, depending on the adapter's body material, some RS-MMC cards may not be recognized properly. Samsung recommend that you check the card is recognized correctly prior to purchasing.

To remove a memory card

Take hold of the end of the card and remove the card.

To format a memory card

When using the memory card for the first time, you must format the card before using it.

Formatting a card deletes all data saved on the card. If the card includes data, backup the data before formatting it.

1 **Click Start > Computer.**

2 Right-click over a card drive with the touchpad and select **Format**.

3 **Click Start** to the formatting.

- To use a card to exchange data with a digital device such as a digital camera, formatting the data using the digital device is recommended.
- When you try to use a card, which is formatted in the computer, in another digital device, you may have to format the card again in the device.
- You cannot format, write or delete data from a SD, or SDHC card with a write protection tab when it is in the Lock position.
- Inserting and removing a memory card repeatedly may damage the memory card.

PC Card Slot (Optional)

You can insert and use various PC cards using the PC card slot.

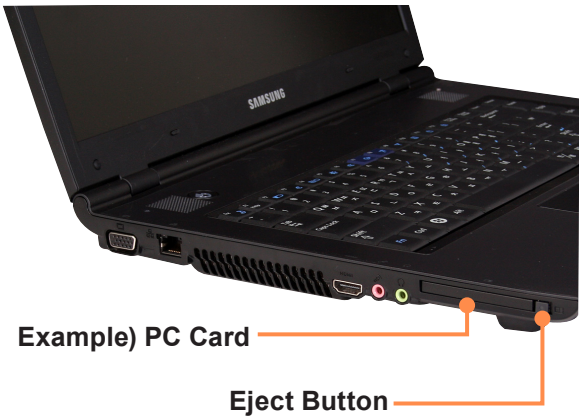
This computer provides one PC card slot supporting the 16/32 bit type.

Before You Start!

- Remove the dummy card installed to protect the PC card slot first. Lightly push the Eject button of the PC card slot. The Eject button pops up. Press the Eject button fully to eject the dummy card.
- The PC card slot does not support the ZV and PC card III types.
- Since these descriptions are written on the basis of the latest operating system, Windows 7, some of the content and the figures of the descriptions may differ depending on the operating system. Since the procedures for other Windows operating systems are similar, use the computer referring to these descriptions.

To insert a PC card

1 Insert a PC card into the PC card slot on the side of the computer.



2 If you insert a card into the slot, Windows recognizes the card automatically or a message telling you to install a driver appears. If the card is not automatically recognized, install the device driver supplied with the card.

If a window asking whether you want to scan and change appears, click on **Continue Without Scan**. This will proceed to Step 2 above.

To remove a PC card

1 Double-click the Safely Remove Hardware icon on the taskbar.

2 Select the PC card to be removed.

3 You can remove the PC card when the **Safely Remove Hardware** message appears.

4 Push the **Eject** button of the PC card slot lightly. Then the **Eject** button pops up.

5 Press the **Eject** button fully to eject the card.

Connecting a monitor / TV

Using an external display device is useful when you are giving a presentation or watching a video or movie through your monitor.

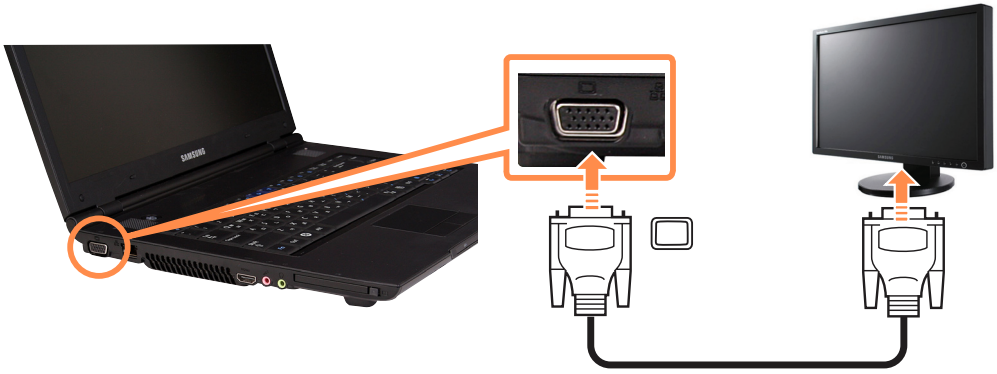
Before You Start!

- You have to buy a connection cable additionally.
- Due to restrictions of the operating system the DualView function is not supported for Windows 7 Starter.

Connecting to the Monitor / TV

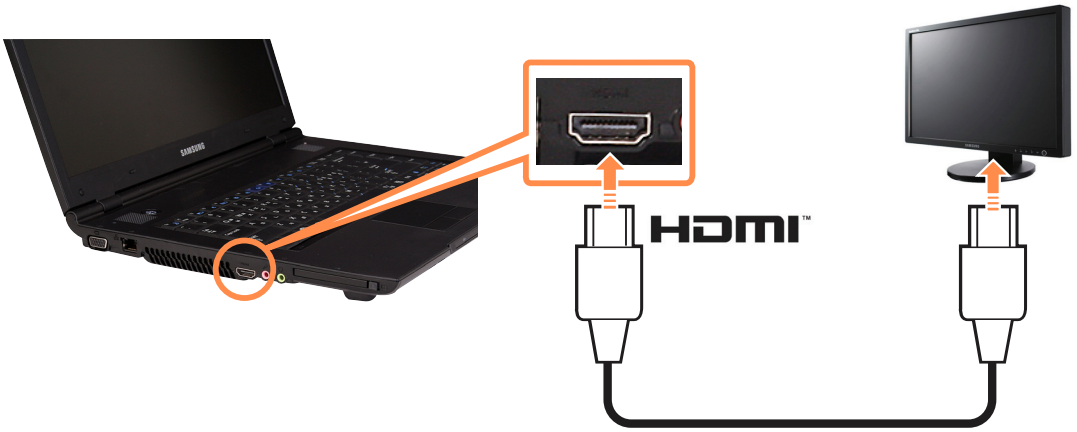
Connecting to the Monitor port (Optional)

Connect the computer to the RGB port of the monitor or TV using a monitor cable (15-pin).



Connecting to the HDMI port (Optional)

Connect the computer to the HDMI port of the monitor or TV using a HDMI cable.



- When connecting the computer to a TV, switch the external input mode of the TV to ‘HDMI’.
- When a TV provides more than one HDMI port, connect the computer to the “DVI IN” port.

Viewing Through a Monitor / TV

You can switch the display device using the shortcut key.

Switching the Display Device using the Shortcut Key

Press the **Fn** + key combination once. Then the **Easy Display Manager** screen appears in which you can select a display device.

Whenever you press the key while holding down the **Fn** key, the selected option is changed.

Example) Selecting LCD+CRT Dual View

- **LCD**: Notebook Screen
- **CRT**: External Monitor Screen
- **HDMI :** TV Screen or Monitor (when it is connected via the HDMI port).
- **LCD+CRT Clone :** Notebook+ External Monitor Screen
- **LCD+CRT DualView:** Notebook+ External Monitor Screen in Dual View
- **LCD+HDMI Clone:** Notebook+ TV(or Monitor) Screen
- **LCD+HDMI DualView:** Notebook+ TV(or Monitor) Screen Dualview

- **What is Dual View?**

  Dual View is a function that enables you to view a computer screen over two display devices. It is convenient when you need a wide screen.

- Due to restrictions of the operating system the DualView function is not supported for Windows 7 Starter.

- The TV screen is only supported for models that support the TV output port (HDMI).
- Simultaneous output to all 3 (LCD + CRT + HDMI) is not supported.
- External Monitor / TV is not supported in the DOS Command Prompt window.

Setting up HDMI TV video (Optional)

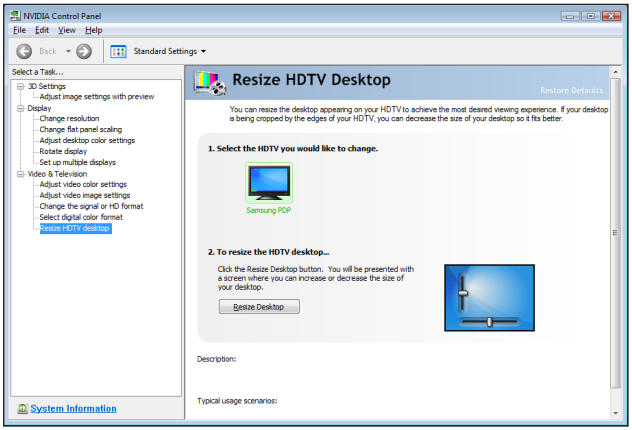
If the Desktop screen displayed on the TV does not fit to the TV screen, configure it as follows depending on the graphics card.

- You can view the graphics card type by selecting **Device Manager > Display adapters** and then clicking the + symbol.
- The screen images and terms may differ from actual product depending on the computer model and driver version.

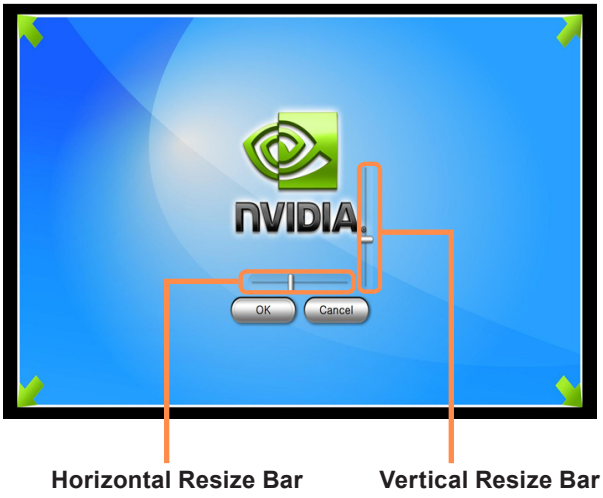
For NVIDIA graphics cards

1 Right-click over the Desktop and select **NVIDIA Control Panel**.

2 In the **Select a Task** window in the left panel, select the **Video and Television > Resize HDTV Desktop** item and then click **Resize Desktop**.


NVIDIA Control Panel
File Edit View Help
Standard Settings
Select a Task...
3D Settings
Adjust image settings with preview
Display
Change resolution
Change flat panel scaling
Adjust desktop color settings
Rotate display
Set up multiple displays
Video & Television
Adjust video color settings
Adjust video image settings
Change the signal or HD format
Select digital color format
Resize HDTV desktop
System Information
Resize HDTV Desktop
Restore Defaults
You can resize the desktop appearing on your HDTV to achieve the most desired viewing experience. If your desktop is being cropped by the edges of your HDTV, you can decrease the size of your desktop so it fits better.
1. Select the HDTV you would like to change.
Samsung PDP
2. To resize the HDTV desktop...
Click the Resize Desktop button. You will be presented with a screen where you can increase or decrease the size of your desktop.
Resize Desktop
Description:
Typical usage scenarios:

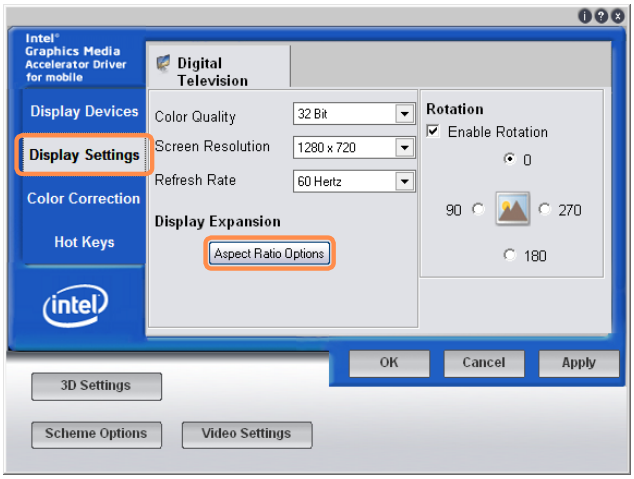
3 Resize the Desktop using the resize bars so that the four arrows at the corners of the Desktop are placed in the corners of the TV and then click **OK**.



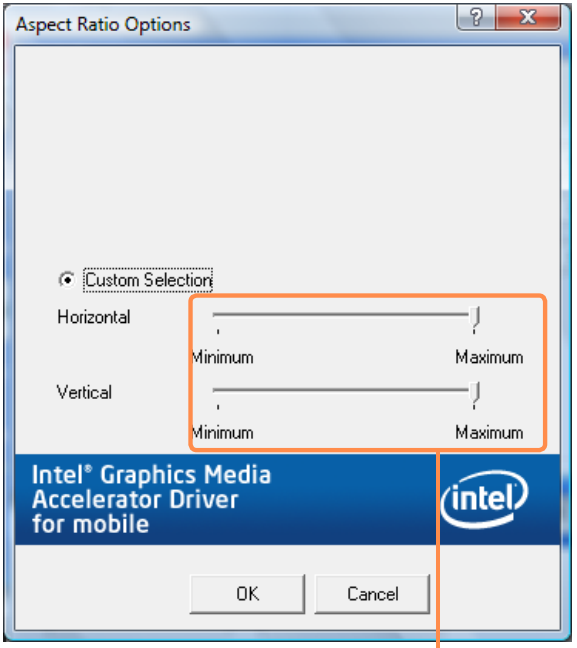
- **For Intel graphics cards**

1 Right-click over the Desktop and select **Graphics Properties**.

2 Click **Display Settings** and click the **Aspect Ratio Options**.



3 Fit the Desktop to the TV screen by sliding the Horizontal and Vertical Resize Bars and click **OK**.



Resize Bars

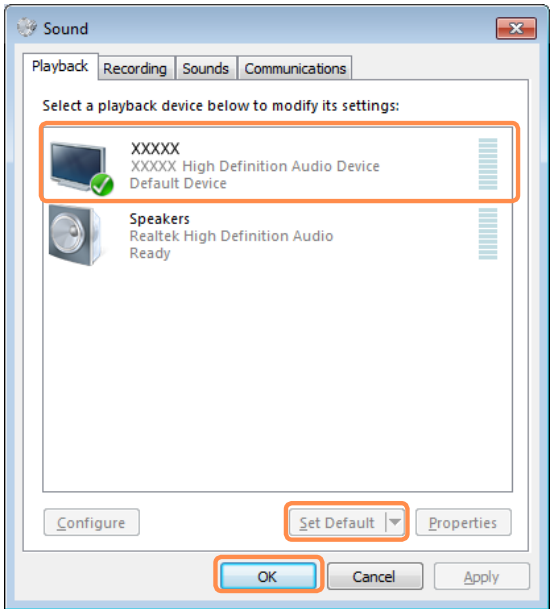
Setting up HDMI TV audio (Optional)

You can configure the sound of the computer to be played through the HDMI TV. You have to configure the sound device in the Control Panel whenever you connect the HDMI TV in order to hear sound from the computer on the TV.

The screen images and terms may differ from actual product depending on the computer model.

1 Right-click over the **Volume** Control icon in the notification area at the bottom right of the Desktop and select **Playback Devices**.
(Alternatively, click the **Control Panel > Hardware and Sound > Sound**.)

2 If the default Playback Device is set to **Speakers**, change it to **Digital Output Device(HDMI) (or HDMI Device)**, click **Set Default** and then click **OK**.



HDMI Output Device may not appear on the playback device list depending on the computer model.

In this case, turn on the TV, connect the TV to the computer using a HDMI cable and then switch to HDMI or LCD+HDMI Clone or LCD+HDMI DualView mode using the Shortcut Key(Fn + F4).

To listen to sound on the computer after disconnecting the HDMI TV, you have to set the Playback Device to **Speakers**.

Using Dual View

Dual View enables users to expand their computer screen over two display devices.

Dual View is convenient when a wide operating space is needed. In addition, since Dual View operates as if there are 2 graphic cards present even when there is only one, you can set the resolution and color for each display device.

- Since these descriptions are written on the basis of the latest operating system, Windows 7, some of the content and the figures of the descriptions may differ depending on the operating system. Since the procedures for other Windows operating systems are similar, use the computer referring to these descriptions.
- Due to restrictions of the operating system the DualView function is not supported for Windows 7 Starter.

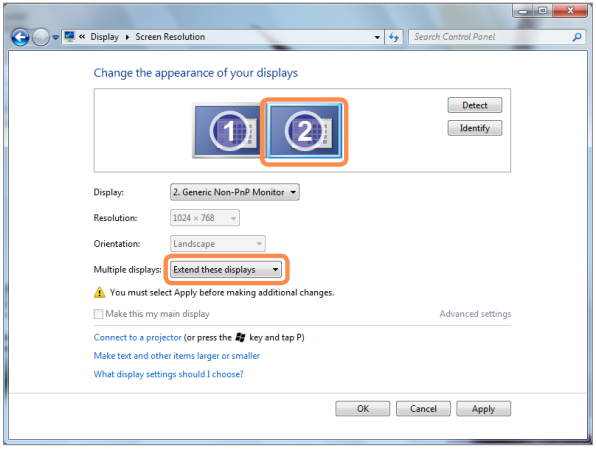
Selecting Dual View

Check if the external display device is properly connected and follow the instructions below.

1 Click the **Start** > **Control Panel > Appearance and Personalization > Adjust screen resolution**.

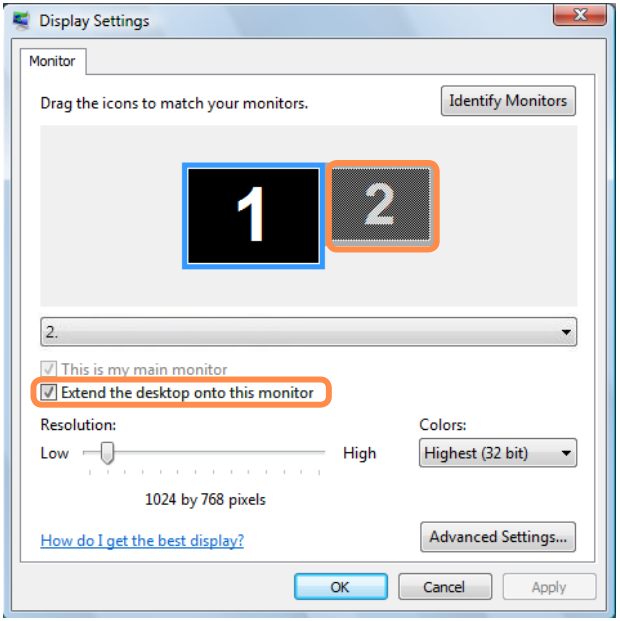
2 ▶ **For Windows 7**

Click the monitor number 2 icon and select **Extend these displays** in the **Multiple displays** item. Click the **Apply** button and then the **OK** button.



▶ **For Windows Vista**

Click on the number 2 monitor icon and select **Extend the desktop onto this monitor**. Click **Apply** and then click the **OK** button.

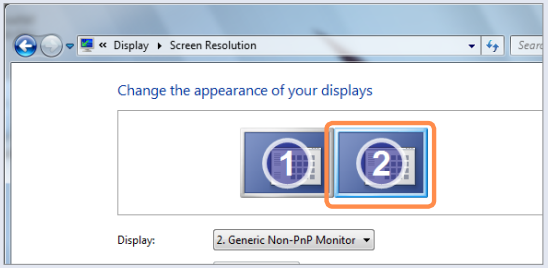


3 When notebook LCD is set as the main device, the 1 digit is displayed over it and the 2 digit is displayed over the auxiliary display device. Now you can expand the Desktop screen over 2 display devices.

When using Dual View, it is recommended setting the LCD as the main device (number 1).

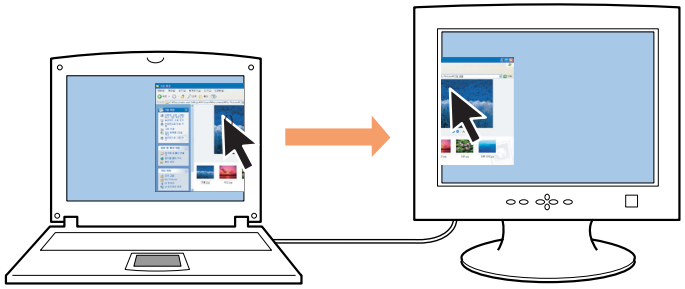
Adjusting the resolution of the auxiliary display device (Monitor Number 2)

If the resolution of the auxiliary display device is output, you can adjust the resolution and color quality by clicking **Start > Control Panel > Appearance and Personalization > Adjust screen resolution > Monitor Number 2**.



Using Window in Dual View

Click on the window title bar of the main LCD (monitor number 1) and drag it into the auxiliary display device (monitor number 2) to move the window.

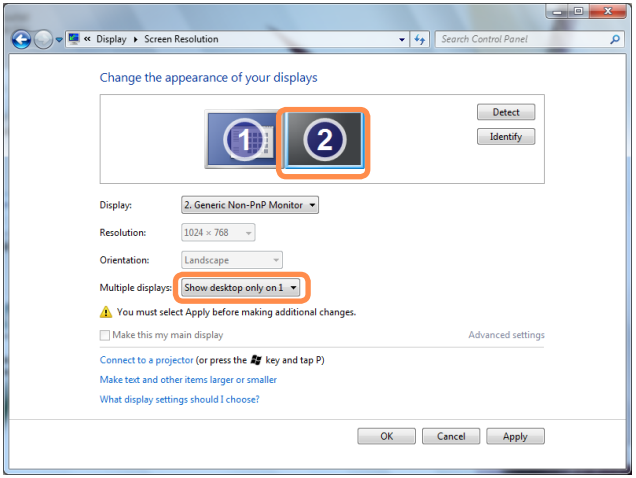


Canceling Dual View

1 Click the **Start** > **Control Panel > Appearance and Personalization > Adjust screen resolution**.

2 ▶ **For Windows 7**

Click the monitor number 2 icon and select **Show Desktop on 1 only** in the **Multiple displays** item. Click the **Apply** button and then the **OK** button.



▶ **For Windows Vista**

Click on the Monitor Number 2 icon, unselect **Extend the desktop onto this monitor**, and then click **Apply**.

Adjusting the Volume

You can adjust the volume using the keyboard and the volume control program.

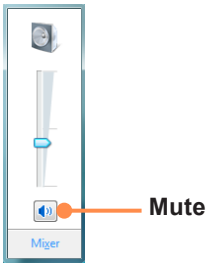
Since these descriptions are written on the basis of the latest operating system, Windows 7, some of the content and the figures of the descriptions may differ depending on the operating system. Since the procedures for other Windows operating systems are similar, use the computer referring to these descriptions.

Adjusting the Volume using the Keyboard

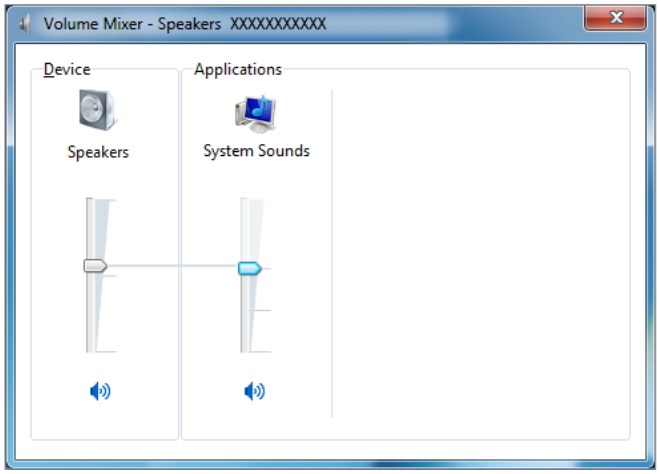
Press the **Fn** + key combination or **Fn** + key combination to adjust the volume.
Press the **Fn** + key combination to turn the volume on or off.

Adjusting the Volume using the Volume Adjustment Program

Click the **Volume** icon on the taskbar and slide the volume control bar to adjust the volume.



Alternatively, right-click over the **Volume** icon and select **Open Volume Mixer** to adjust the volume.



Using the Sound Recorder

The procedures to record sound using the Windows Recorder are described below.

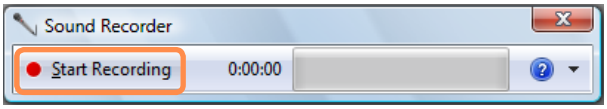
1. Connect a microphone to the microphone jack.
   You can also use the internal MIC.

2. Right-click over the **Volume** icon on the taskbar and select **Recording Device**.

3 Check if the microphone is set as the default recording device.

If this is the case, it is already set as the default device. If not, right-click over the microphone and select **Set default**.

4 Click **Start > All Programs > Accessories > Sound Recorder** and click **Start recording** to start a recording.



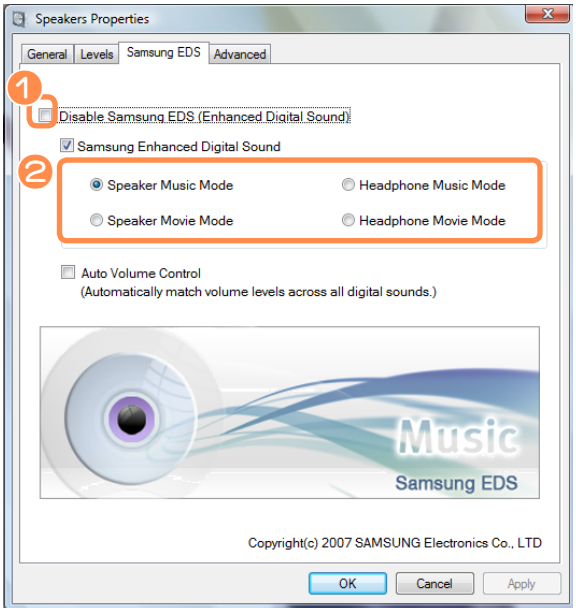
Using EDS

The EDS function enables you to experience more stereophonic sound using stereo speakers.

1 Right-click over the **Volume** icon in the Taskbar and select **Playback Devices (P).**

2 Select **Speaker** in the **Play** tab and click **Properties**.

3 Select the **Samsung EDS** tab in the **Speaker Properties** window. ① Unselect **Disable Samsung EDS (Enhanced Digital Sound)** and then ② select a mode.



4 To use the Auto Volume Control function, select **Auto Volume Control.**

- **What is Auto Volume Control?**

  Auto Volume Control is a function that maintains the same volume level for all digital sources. The volume level of playing music changes for each file even if the player volume is fixed. If you use the Auto Volume Control function, the volume level will remain the same.

  However, if the Auto Volume Control function is activated, the volume control function of a multimedia player such as Windows Media Player may appear to not work. In this case, click over the volume icon in the notification area of the Taskbar and adjust the volume by sliding the volume bar.

- The function is only supported for a computer's built-in speakers and headphones.
- For product improvement or changes to functions, the screen image is subject to change without prior notice.

Intel Turbo Memory Device (Optional)

Intel Turbo Memory is a device that enhances program execution speed, minimizes power consumption and reduces the booting time by optimizing the hard disk drive access.

To use the Intel Turbo Memory device, perform the setup as follows.

- You can only use the Intel Turbo Memory device with Windows 7/Vista.
- This function is only supported for a specific model.

1 Select **Start** > **All Programs** > **Intel Turbo Memory** > **Intel Turbo Memory Console**.

The **Intel Turbo Memory console** program (optional) is only provided for models with Intel Turbo Memory.

2 Select the Information tab and check if both **Windows ReadyBoost***and **Windows ReadyDrive*** in the Arguments fields are set to **Available**. If they are not set to **Available**, select the **Select a cache policy to use** option. If the Restart the computer message appears, select Yes and then the computer restarts.

3 Select **Start** > **All Programs** > **Intel Turbo Memory** > **Intel Turbo Memory Console** and check if Windows ReadyBoost and Windows ReadyDrive on the right are displayed as '**Normal Operation**'.

What is **ReadyBoost?**

A new Windows 7/Vista technology that enhances the program execution speed by using the embedded flash memory.

What is **ReadyDrive?**

A new Windows 7/Vista technology that enhances the booting and drive access of the hard disk drive by using the embedded flash memory.

Turning the Intel Turbo Memory device off

Unselect the device items in the **Select a cache policy to use** field in Step 2 above and restart the computer according to the instruction.

Check before installing another operating system such as Windows XP

To remove Windows 7/Vista, the default operating system of this computer, and to install a different operating system such as Windows XP, you need to change the SETUP settings first.

Set the AHCI item in SETUP to Disabled before installing another operating system.

If a problem occurs because of the installation of another operating system, the company will not provide technical support, a replacement or refund, and if our service engineer visits you due to this problem, a service charge will be applied.

Restrictions

Intel Turbo Memory is only supported for Windows 7/Vista. This function is not available for any other operating system.

1. Turn the computer on and press the **F2** key when the booting screen (SAMSUNG logo) appears.
2. After a moment, the SETUP screen appears. Enter the **Advanced** menu in SETUP.
3. Move to the **AHCI Mode Control** item and press Enter.
4. Select **Disabled** and press **Enter**.
5. Enter the **Exit** menu, move to **Exit Saving Changes** and press **Enter**.
6. When the **Save configuration changes and exit now?** message appears, select Yes and press **Enter**.

Now you will be able to install a different operating system.

Q & A

Q How does Intel Turbo Memory work?

A Intel Turbo Memory enhances memory performance and reduces the power consumption by minimizing the number of hard disk drive read and write operations through the inter-operation of the installed device driver and the embedded flash memory.

Q Can I use Intel Turbo Memory in Windows XP?

A Since Intel Turbo Memory uses performance enhancement functions provided by Windows 7/ Vista, you cannot use this function in Windows XP.

Using the Fingerprint Identification System (Optional)

By registering your fingerprint with the fingerprint identification system, you can use your fingerprint instead of entering a password. You can also use your fingerprint instead of a password when logging into Windows and managing files and folders.

However, you have to first set a password for your Windows account to use the fingerprint identification system.

Before You Start!

- You can use the fingerprint identification system using the TrueSuite program.
- For more detailed information, refer to the online help section of the program or the video tutorial.
- The fingerprint identification system and the TrueSuite program are optional and may not be provided depending on the model.
- The screen may differ depending on the program version.

Registering your fingerprint

- If no password has been set for the Windows **User Account**, you have to first set a password by selecting **Control Panel** and User **Accounts** before using the fingerprint identification system using the TrueSuite program.
- If the TrueSuite program has not yet been installed, install the program and then register your fingerprint.

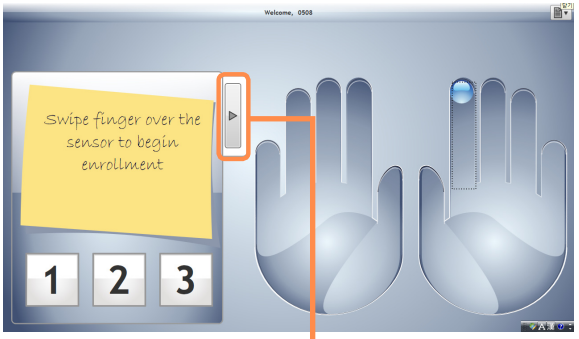
1 Click **Start > All Programs > TrueSuite > TrueSuite** and then **Start**.

2 Register according to the instructions on the registration screen. When the screen appears where you can select a finger, click on the finger you want to register.

If the password input window appears, enter the password for the Windows **User Account**.

If no password is set for the Windows **User Account**, you cannot proceed to the next step. Set a password by clicking **Control Panel** and **User Accounts** and then entering a password.

3 Place your finger over the fingerprint identification sensor of the **fingerprint identification system** to register your fingerprint. If the fingerprint is recognized properly, the numbers at the bottom of the screen are checked. If your fingerprint is recognized properly three times, a pop-up window appears. If you click **OK**, the fingerprint registration is completed.



Tutorial video

For more information, refer to this video.

Registering more than one fingerprint is recommended.

Logging into Windows

When the computer has restarted, you can log into Windows using your fingerprint. Turn the computer on. When the Select Windows User Account screen appears, place your finger over the fingerprint identification sensor and then pull it downwards slowly.

Deleting a fingerprint

To delete an existing registered fingerprint and use another person's fingerprint or to delete all registered fingerprints, remove the fingerprint using the procedures below.

1. Click **Start > All Programs > TrueSuite > TrueSuite** and the **Register tab**.

2. Right-click over the circle of the finger corresponding to the registered fingerprint and click **Delete**. The fingerprint will be deleted.

Using TPM Security Device (Optional)

The TPM (Trusted Platform Module) security device is a security solution that protects users' private information and data using the user authentication information saved on the TPM chip installed on the computer.

To use the TPM security device, you have to first complete the setup and user registration.

Before You Start!

For more detailed information, please refer to the online help information for the program.

Setup and User Registration

1 Click **Start > All Programs > Infineon Security Platform Solution > Security Platform Management > User Settings**.

Alternatively, double-click the icon in the system tray of the Taskbar and click **Next**.

2 Configure the security authentication related settings according to the instructions of the **Setup Wizard**.

Security Platform Quick Initialization Wizard
Welcome to the Security Platform Quick Initialization Wizard
infineon
Please select an initialization method:
Quick initialization (recommended for most users)
Uses random secret data for administration and emergencies, default data file locations and default feature settings.
You are recommended to use a removable media to store important passwords and data.
Which drive do you want to use?
F: - Removable media
TPM
Advanced initialization (for expert users)
Allows advanced configuration of secret data, data file locations and features. Required to configure Enhanced Authentication.
< Back
Next >
Cancel
Help

If you backup the emergency recovery file to an external storage device while following the steps in the Setup Wizard, you can use the TPM security device more safely.

3 If the Setup Wizard completion window appears, click **Finish**.

4 The User Setup Wizard screen appears where you can register a user.
If the screen does not appear, click **Start > All Programs > Infineon Security Platform Solution > Security Platform Management > User Settings**.

5 Follow the user registration steps according to the instructions in the User Setup Wizard.

6 When the setup and the user registration are completed, you can use the security solution functions such as file and folder encryption and virtual drives.

For the procedures to use the security solution functions such as file and folder encryption and virtual drives, refer to the online help of the program.

Initializing and Reconfiguring the TPM Chip

If you have to perform the user registration process again due to a hard disk error, you can do so after initializing the authentication information saved on in the TPM chip.

If the TPM chip is initialized, all the authentication information saved on the TPM chip will be deleted.
Decrypt all encrypted files and folders before performing the initialization. Otherwise, you will not be able to access the encrypted files and folders after the initialization.

1 Delete the specified folder as follows to delete the authentication information on the existing TPM chip.

❶ Click the **Start > Computer > Settings > Folder and Search Options > View tab > Hidden files and folders** item, select S**how hidden files and folders** and then click **OK**.

❷ Click the **Start > Computer > Drive C: > ProgramData** folder and delete the **Infineon** folder in the **ProgramData** folder.

The folder path may differ depending on the installed operating system.

2 Restart the computer. If the Samsung logo screen appears, press the **<F2>** key several times.

3 If the BIOS Setup screen appears, press the → key to move to the **Security** menu. Move to the **TPM Support** item by pressing the ↓ key and set the item value to **<Enable>**.

4 Move to the **TPM State** menu item by pressing the → key, move to the **Change TPM State** item by pressing the ↓ key and then press **<Enter>**.

5 Move to the **Clear** item by pressing the ↓ key and press **<Enter>**.

6 Press the **<F10>** key. If the **Setup Confirmation** window appears, select **Yes** and press **Enter**.

7 Restart the computer, select **Execute** from the **Physical Presence operations** and press **<Enter>**.

8 Repeat Steps 2~4.

9 Move to the **Enable & Activate** item by pressing the ↓ key and press **<Enter>**.

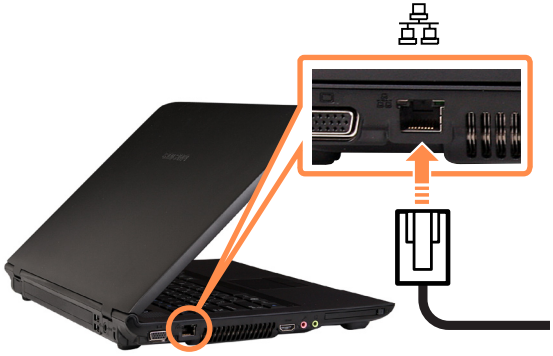
10 Press the **<F10>** key. If the **Setup Confirmation** window appears, select **Yes**, and press **<Enter>**. The computer will restart. Since the TPM chip initialization is completed, you can perform the setup and user registration.

Wired Network

A wired network is a network environment used for a company network or broadband internet connection at home.

Since these descriptions are written on the basis of the latest operating system, Windows 7, some of the content and the figures of the descriptions may differ depending on the operating system. Since the procedures for other Windows operating systems are similar, use the computer referring to these descriptions.

1 Connect a LAN cable to the computer's LAN port.

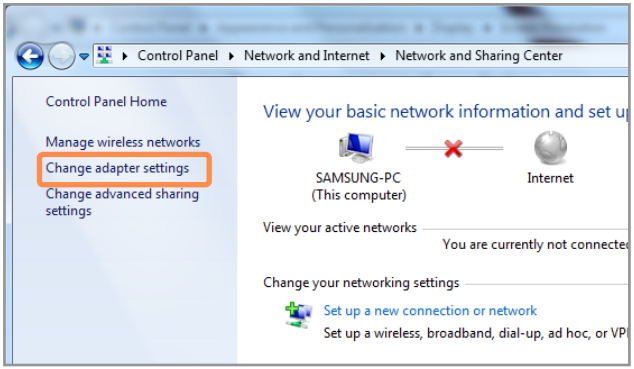


2 Click **Start > Control Panel > Network and Internet > Network and Sharing Center**.

3

▶ **For Windows 7**

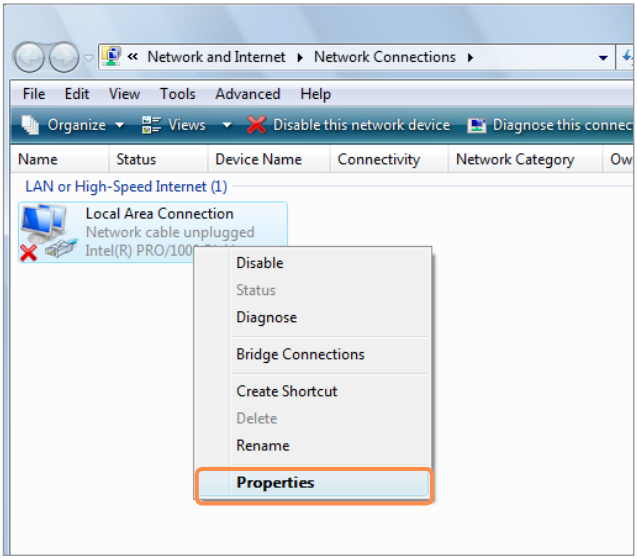
Click the **Change adapter settings** in the left menu pane.


Control Panel ▸ Network and Internet ▸ Network and Sharing Center
Control Panel Home
Manage wireless networks
Change adapter settings
Change advanced sharing settings
View your basic network information and set u
SAMSUNG-PC
(This computer)
Internet
View your active networks
You are currently not connecte
Change your networking settings
Set up a new connection or network
Set up a wireless, broadband, dial-up, ad hoc, or VP

▶ **For Windows Vista**

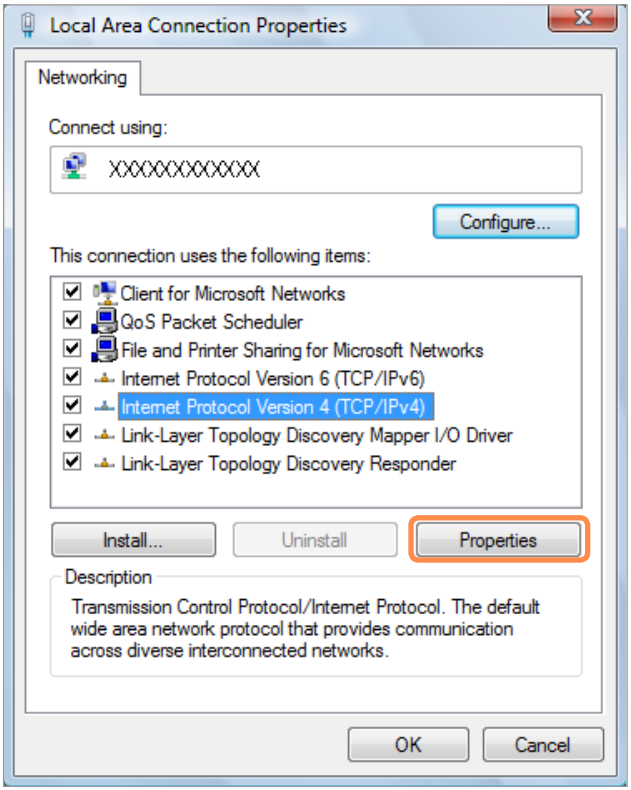
Click **Manage Network Connections** from the left pane.

4 Right-click over the **Local Area Connection** and select **Properties**.



The LAN Device name may differ depending on your computer's Network Device.

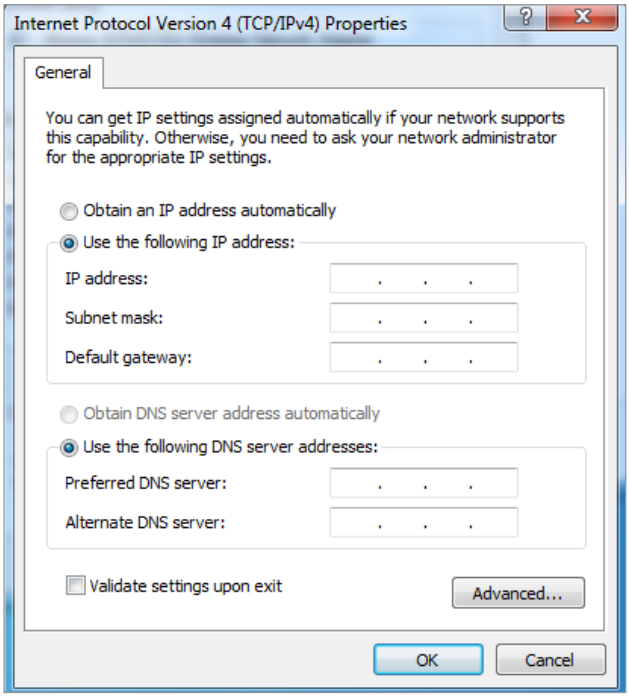
5 Select **Internet Protocol Version 4 (TCP/IPv4)** from the **Networking** tab and click **Properties**.



- The LAN device driver may differ depending on your LAN device model.
- To add a network component, click **Install** in the screen shown in the figure above. You can add clients, services, and protocols.

6 Configure the IP settings.

When using DHCP, select **Obtain an IP address automatically**. To use a static IP address, select **Use the following IP address**, and set the IP address manually.


Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

When not using DHCP, ask your network administrator for the IP address.

7 When you have completed the settings, click the **OK** button.

The network settings have been completed.

Using both DHCP and a fixed IP simultaneously

Using the **Alternate Configuration** providing by Windows Vista, you can set both automatic and fixed IP addresses and then you can select to use either of them to connect to the Internet.

1

▶ **For Windows 7**

Click **Start > Control Panel > Network and Internet > Network and Sharing Center** and click on **Change adapter settings** in the left menu pane.

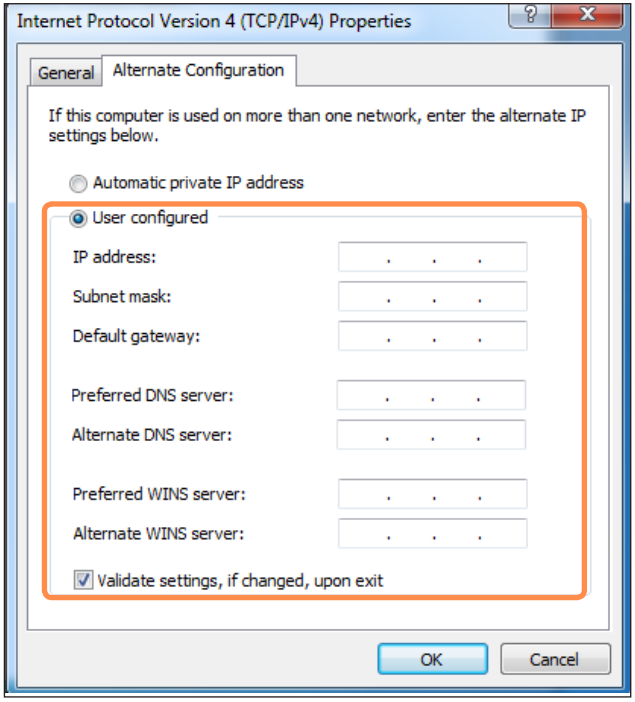
▶ **For Windows Vista**

Click **Start > Control Panel > Network and Internet > Network and Sharing Center** and click **Manage Network Connections** in the left pane.

2 Right-click over the **Local Area Connection** and select **Properties**.

3 Select **Internet Protocol Version 4 (TCP/IPv4)** from the **Networking** tab and select **Properties**.

4 Select the **Alternate Configuration** tab, select **User configured**, fill in the corresponding fields and click the **OK** button.



Wireless Network

A wireless network (Wireless LAN) environment is a network environment that enables communicating between multiple computers at home or a small-size office through wireless LAN devices.

Before You Start!

- The descriptions below are for computer models with a Wireless LAN card or device.
  A Wireless LAN device is optional.
  The pictures in this manual may differ from the actual product depending on your wireless LAN device model.
- To use the wireless LAN, you have to turn the wireless LAN on first by pressing the **Fn** + F9 keys. If the wireless LAN is turned on, the **Wireless LAN LED** is lit.

What is an Access Point (AP)?

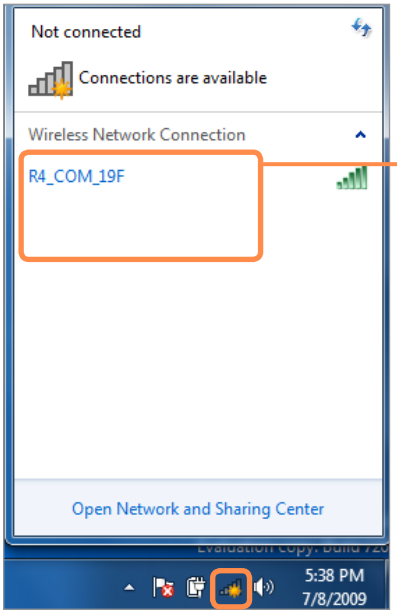
An AP is a network device that bridges wired and wireless LANs, and corresponds to a wireless hub in a wired network. You can connect multiple wireless LAN installed computers to an AP.

Connecting to a Wireless LAN

If there is an AP, you can connect to the Internet via the AP using the Wireless LAN connection method provided by Windows.

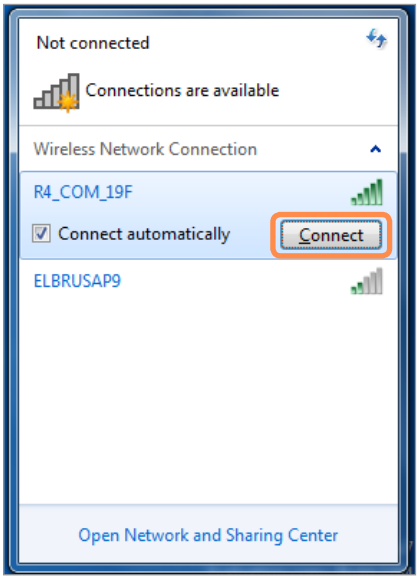
▶ For Windows 7

1 If you click the **Network Connections** icon in the system tray, a list of available APs appears. If you select an AP to connect to, the **Connect** button appears.



2 Click **Connect**.

If a network key is set for the AP, enter the network key and then click **Connect**.



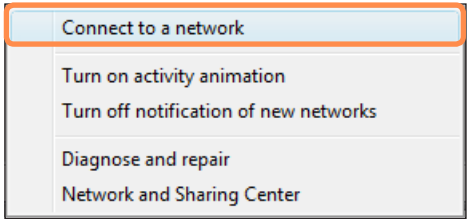
For the network key, please ask your network administrator.

3 When **Connected** to the AP is displayed, click the **Close** button.

You can access the network.

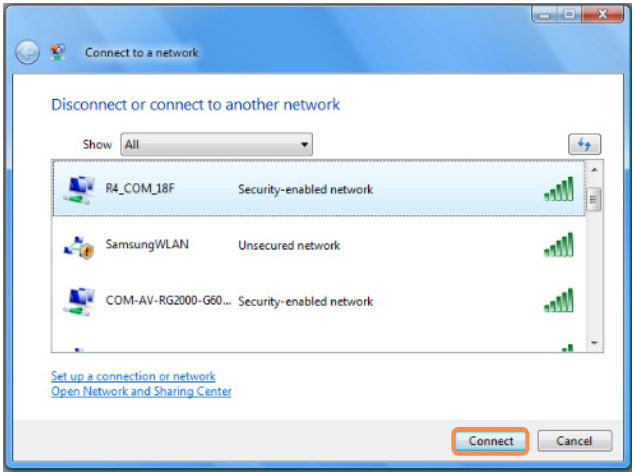
▶ **For Windows Vista**

1 Right-click over the **Network Connections** icon on the taskbar and click **Connect to the Network**.


Connect to a network
Turn on activity animation
Turn off notification of new networks
Diagnose and repair
Network and Sharing Center

2 Select an AP to connect to and click **Connect**.

If there is a configured network key for the AP to connect to, the Enter Network Key window appears. Enter the network key in the window and then click the **Connect** button.



Ask your network administrator for the network key, if necessary.

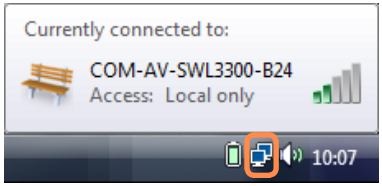
3 When **Connected** to the AP is displayed, click the **Close** button.

You can access the network.

Checking the network connection status

Move the mouse pointer over the **Wireless Network Connection** icon on the taskbar, and the connection status is displayed. (For Windows Vista,)

Windows 7



Windows Vista

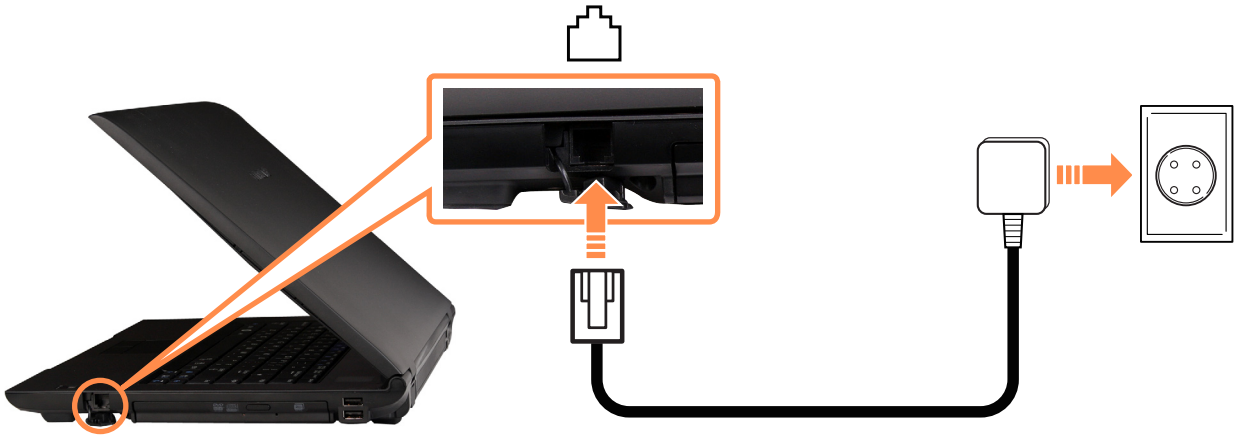
Connecting with a Modem (Optional)

The procedures to connect to the Internet via a phone connection are described below.

Before You Start!

- To connect to the Internet, you have to subscribe to an Internet connection service of an Internet service provider (ISP).
- A modem port is optional and provided for some models only.
- The actual color and appearance of the computer may differ from the pictures used in this guide.

1 Connect the phone cable to the Modem port.
Take care to not connect a digital phone line to the modem port.



2 Connect to the Internet according to the instructions of your Internet service provider (ISP).

If the Internet connection is terminated abnormally, the connection is not released and the corresponding cost can be accrued.

Chapter 3.
Settings and Upgrade

LCD Brightness Control 84

BIOS Setup 86

- Entering the BIOS Setup 86
- The BIOS Setup Screen 87

Setting a Boot Password 89

Changing the Boot Priority 91

Upgrading Memory 92

Battery 94

- Installing/Removing the Battery 94
- Charging the Battery 95
- Measuring the Remaining Battery Charge 96
- Extending the Battery Usage Time 97

Using the Security Lock Port 98

LCD Brightness Control

You can adjust the LCD brightness in 8 levels.

Before You Start!

The screen brightness is automatically set to the brightest level (brightness level 8) when AC power is connected and the brightness is automatically set dimmer when the computer runs on battery power to extend the battery use time.

Controlling the Brightness Using the Keyboard

Adjust the LCD brightness by pressing the **Fn** + key or the **Fn** + key.

The LCD brightness can change up to 8 levels and the brightness increases by 1 level when pressing the **Fn** + key once.

- **Maintaining the changed LCD brightness even after turning the computer on again**

  To maintain the LCD brightness set by using the brightness control keys or through the Power Options, follow the procedures below.

  1. Turn the computer on and press the **F2** key when the SAMSUNG logo appears on the screen to enter the BIOS Setup.
  2. Select the **Boot** menu and set the **Brightness Mode Control** item to **User Control**.
  3. Press the **F10** key to save the settings and exit Setup.

- **Saving battery power consumption**

  Decreases the LCD brightness when the computer is running on battery power to save battery power consumption.

- **LCD bad pixels principle of laptop computer**

  Samsung observes the specifications regarding strict quality and reliability of LCD. But in spite of that, it is inevitable that there might be a small number of bad pixels. A large number of bad pixels can cause problems in appearance, but a small number of pixels doesn't affect the computer performance.

  Therefore Samsung observes and manages the following dot principles:

  - Bright dot : 2 or less
  - Black dot : 4 or less
  - Combination of Bright and Dark : 4 or less

Instructions for Cleaning the LCD

Clean the LCD panel with a soft cloth lightly moistened with computer cleansing detergent moving in one direction.
Cleaning the LCD panel with excessive force can damage the LCD.

Auto Brightness Control (Optional)

For computers with an ambient light sensor, the ambient light sensor detects the ambient illumination and automatically controls the LCD brightness accordingly. However, the ambient light sensor only works when the computer is operating on battery power.

If a user controls the LCD brightness with the keyboard, the ambient light sensor is turned off and the brightness set by the user remains until the computer restarts.

BIOS Setup

The BIOS Setup enables you to configure your computer hardware according to your needs.

Before You Start!

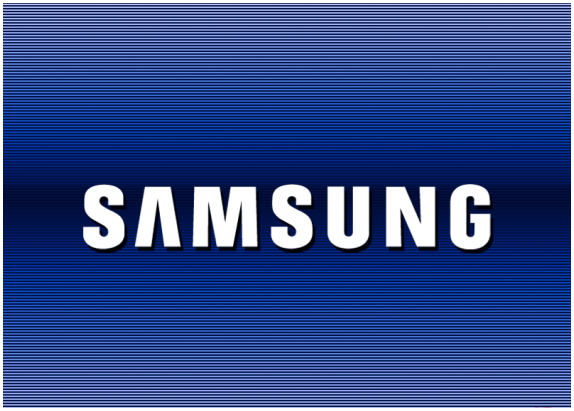
- Use the BIOS setup to define a boot password, change the booting priority, or add a new device.
  Since incorrect settings may cause your system to malfunction or crash, take care when configuring the BIOS.
- The functions of the BIOS setup are subject to change for product function enhancement purposes.

The BIOS Setup menus and items may differ depending on your computer model.

Entering the BIOS Setup

1 Turn the computer on.

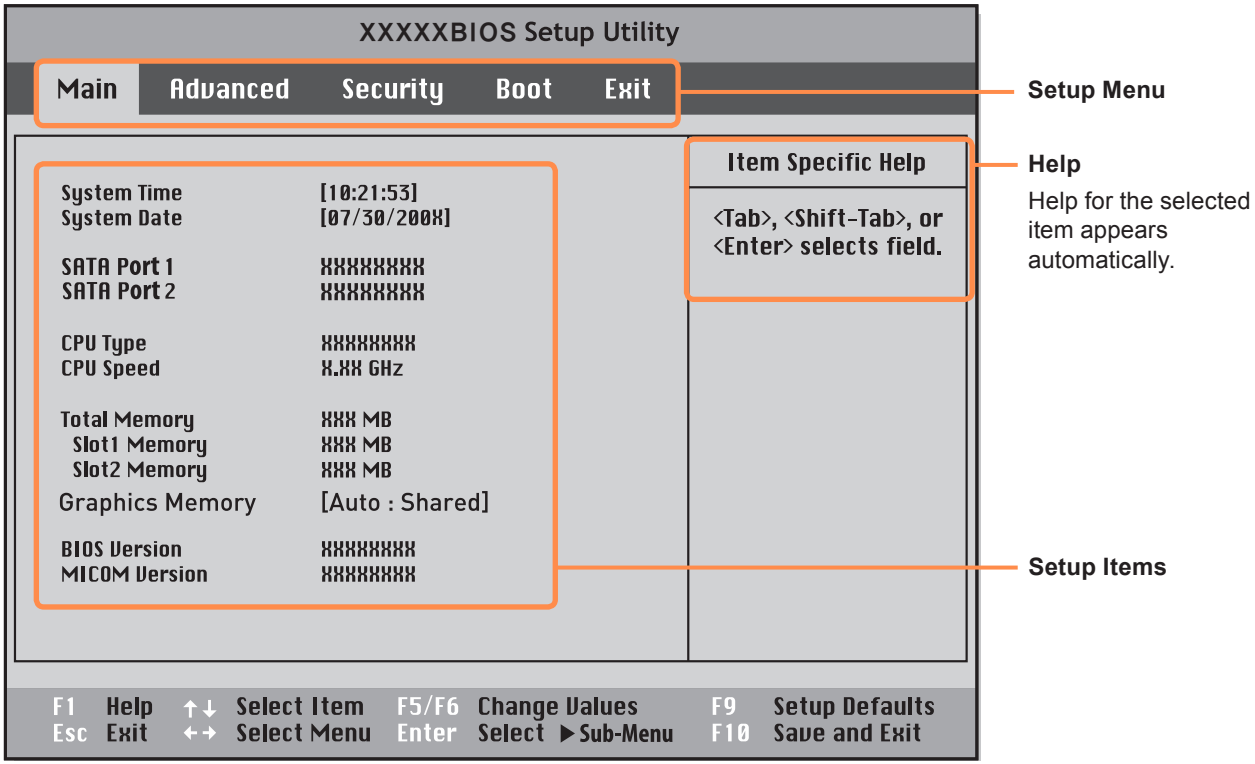
2 When the booting screen (SAMSUNG logo) appears, press the **F2** key to enter the BIOS Setup.



Press the **F12** key while the booting screen(SAMSUNG logo) appears, the system will try to boot from the network.

3 After a moment, the BIOS setup screen appears.
The items in the BIOS setup may differ depending on the product.

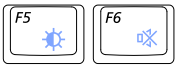
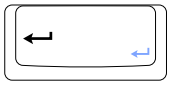
The BIOS Setup Screen



Setup Menu	Description
Main	Used to change the basic system and environment settings.
Advanced	Used to configure advanced functions on your computer for devices and chipsets.
Security	Used to configure security functions, including passwords.
Boot	Used to set the boot priority and other boot options
Exit	Used to exit the Setup either saving the changes or not.

System Setup Keys

In the Setup, you have to use the keyboard.

F1		Press to view the Setup Help.
Up & Down Keys		Press to move up and down.
F5/F6		Press to change the item value.
F9		Press to load the default Setup settings.
ESC		Press to return to a higher level menu or to move to the Exit menu.
Left & Right Keys		Press to move to another menu.
Enter		Press to select an item or to enter a sub menu.
F10		Press to save the changes and exit Setup.

The keyboard image may differ from the actual keyboard.

Setting a Boot Password

When setting a password, you have to enter a password to use the computer or enter the BIOS Setup.

By configuring a password, you can restrict system access to authorized users only and protect data and files saved on the computer.

Before You Start!

- Do not lose or forget your password.
- If you have forgotten your password, contact a Samsung service center. In this case, a service fee will be charged.

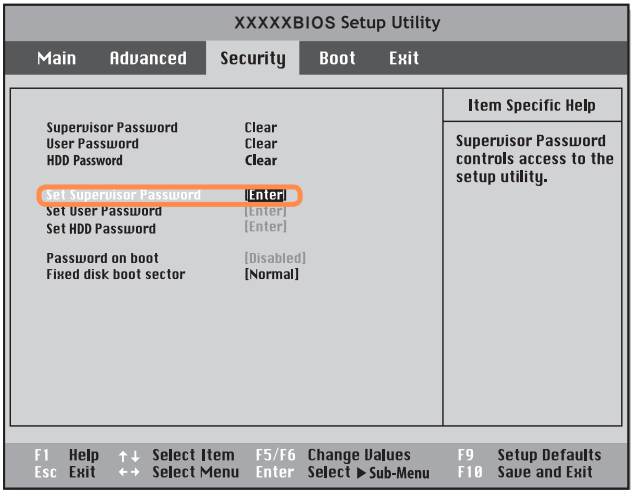
Setting a Supervisor Password

A Supervisor Password is required to turn the computer on or to start the System Setup.

When setting a Supervisor Password, users other than a supervisor cannot use the computer.

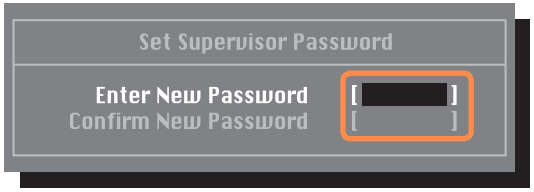
1 Select the **Security** menu in the BIOS Setup.

2 In the **Set Supervisor Password** item, press <**Enter**>.


XXXXXBIOS Setup Utility
Main
Advanced
Security
Boot
Exit
Item Specific Help
Supervisor Password controls access to the setup utility.
Supervisor Password Clear
User Password Clear
HDD Password Clear
Set Supervisor Password [Enter]
Set User Password [Enter]
Set HDD Password [Enter]
Password on boot [Disabled]
Fixed disk boot sector [Normal]
F1 Help ↑↓ Select Item F5/F6 Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

3 Enter a password, press <**Enter**>, re-enter the password for confirmation, and press <**Enter**> again.

The password can be up to 8 alphanumeric characters. Special characters are not allowed.



4 When a message confirming the password configuration appears in the **Setup Notice** window, press <**Enter**>.

The supervisor password has been set.

The supervisor password is required to turn the computer on or to enter the BIOS Setup.

Setting a User Password

Users can start the system with a user password, but cannot enter the System Setup. By doing this, you can prevent other users from entering Setup.

Before configuring a user password, a **supervisor password** must have been configured. Deactivating the supervisor password also deactivates the user password.

In the **Set User Password** item, press <**Enter**> and complete the procedures from Step 3 of Setting a Supervisor Password.

Setting Up a Boot Password

To setup a boot password, the administrator password (**Set Supervisor Password**) should be set in advance.

Set the **Password on boot** item to **Enabled**.

Once a boot password is set, you have to enter a password to boot up the computer.

Setting up a Hard Disk Drive Password (Optional)

A supervisor password must be set using the Set Supervisor Password menu.

If you set a password for a hard disk drive, it cannot be accessed from another computer.

Press <**Enter**> in the **Set HDD Password** item and define a password as described in Step 3 of the Setting up the Supervisor Password.

The hard disk drive password setting function is not provided for some models.

Changing the hard disk drive password

For security purposes, you can only change a hard disk drive password after restarting the computer by pressing the computer **Power** button.

If you cannot change the hard disk drive password or the **HDD Password Frozen** message appears when entering the BIOS Setup and then selecting **Security > HDD Password**, press the **Power** button to turn the computer on again.

Deactivating the Password

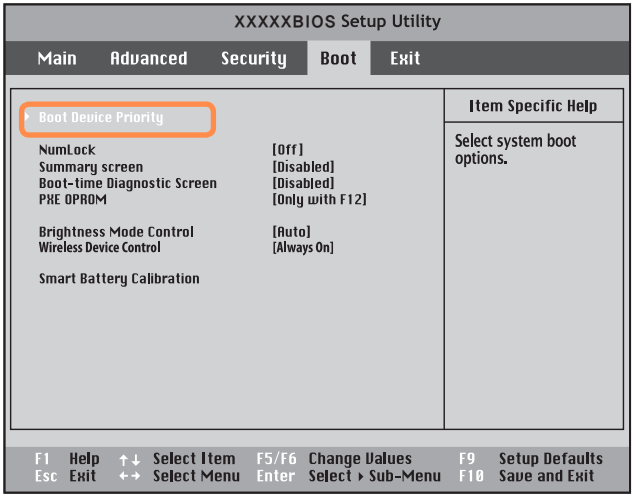
1. Press <**Enter**> on the password to be deactivated. For example, to deactivate a supervisor password in the **Set Supervisor Password** item, press <**Enter**>.
2. In the **Enter Current Password** item, enter the currently configured password and press <**Enter**>.
3. Leave the **Enter New Password** item field empty, and press <**Enter**>.
4. Leave the **Confirm New Password** field empty, and press <**Enter**>.
5. In the **Setup Notice** window, press <**Enter**>.
   The password is deactivated.

Changing the Boot Priority

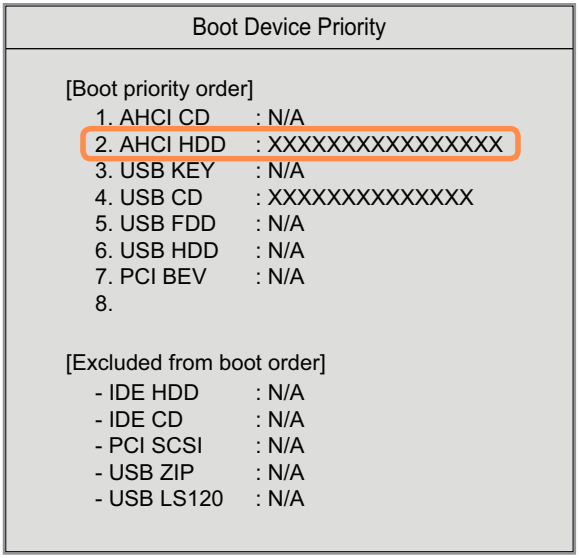
By default, the highest boot priority device is set to the CD-ROM/DVD drive. As an example, the procedures to change the highest boot priority device to the hard disk drive are described below.

1 Select the **Boot** menu in the BIOS Setup.

2 Press <**Enter**> on the **Boot Device Priority** item.



3 Press the down key (↓) to move to the **AHCI HDD** itemand press the **F6** key to move up to the top item.


Boot Device Priority
[Boot priority order]
1. AHCI CD : N/A
2. AHCI HDD : XXXXXXXXXXXXXXX
3. USB KEY : N/A
4. USB CD : XXXXXXXXXXXXX
5. USB FDD : N/A
6. USB HDD : N/A
7. PCI BEV : N/A
8.
[Excluded from boot order]
- IDE HDD : N/A
- IDE CD : N/A
- PCI SCSI : N/A
- USB ZIP : N/A
- USB LS120 : N/A

4 Press the **F10** key to save the settings and exit Setup.

The highest boot priority device is now set to the Hard Drive.

Upgrading Memory

One or more memory modules are installed on the computer.

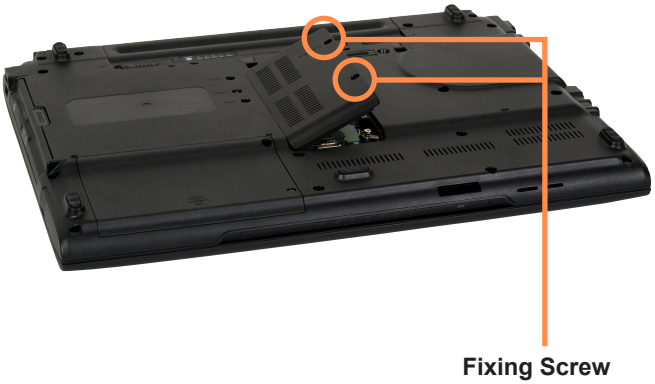
There are 2 memory slots and users can replace the installed memory or add new memory.

Before You Start!

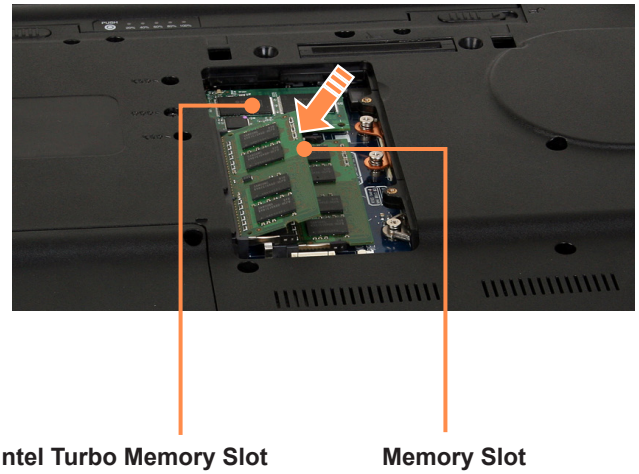
- Replace or install new memory only after shutting the computer down completely. Do not replace or install memory when the computer is in Sleep mode.
- Disconnect main power plug and remove the battery before continuing.
- To utilize the dual channel feature, using memory modules with the same specifications (of the same capacity and from the same manufacturer) is recommended.
- Only use the same type of memory as specified in the Product Specification.

Adding a Memory Module

1 Remove the screw on the memory compartment cover at the bottom of the computer using a screw driver.

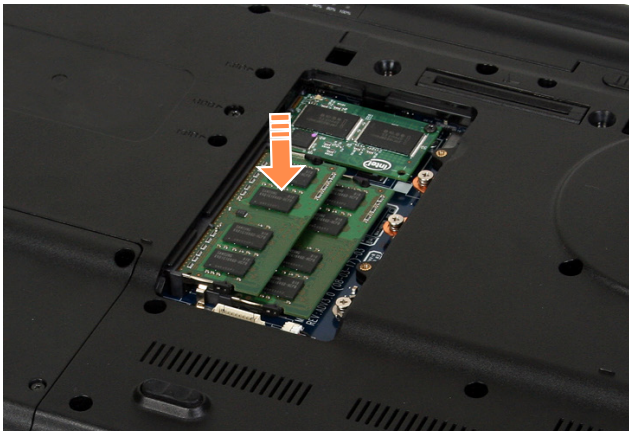


2 Insert a new memory module into the memory slot at an angle of approximately 30 degrees aligning it to the angle of the memory slot.



You cannot install normal memory modules into the Intel Turbo Memory slot.

3 Push the memory module down so that it is completely fixed. If the memory does not fit easily, push the memory module down while pulling the memory module latches outward.



4 Close the memory compartment cover and fasten the screw.

Removing a memory module

Pull the memory module latches outward.
The memory module will pop up.

Remove the memory module out at an angle of 30 degrees.

Battery

Please refer to the following instructions when running the computer on battery power without connecting the AC power.

A Lithium-Ion smart battery is supplied with this computer.

Before You Start!

- Carefully read and follow the precautions printed on the battery before using the battery.
- Before using your computer for the first time after purchasing it, charge the battery completely.

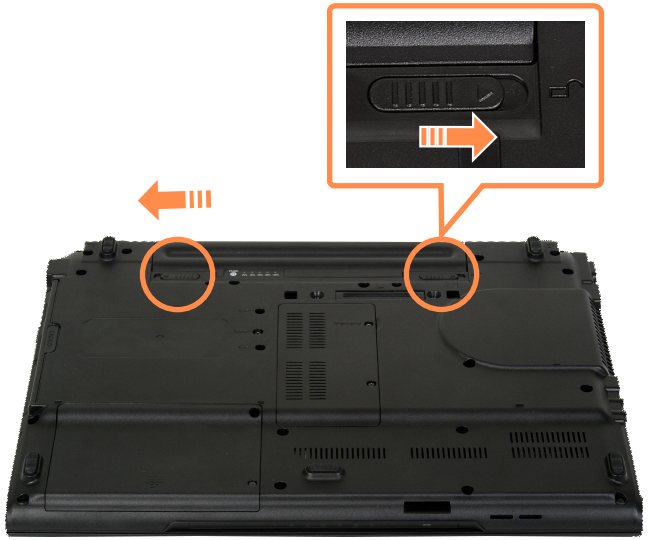
Precautions

- Use only chargers specified in the User Manual.
- Never heat the battery pack, put it near or in a fire or use at a temperature higher than 60°C, as this may cause fire.
- Never cause a short circuit between the battery pack terminals or disassemble the battery pack.
- Carefully read and follow the precautions printed on the battery and the safety instructions in the User Manual before using the battery.
- Please refer to the system operation environment of this manual and operate and store the battery at room temperature.

Installing/Removing the Battery

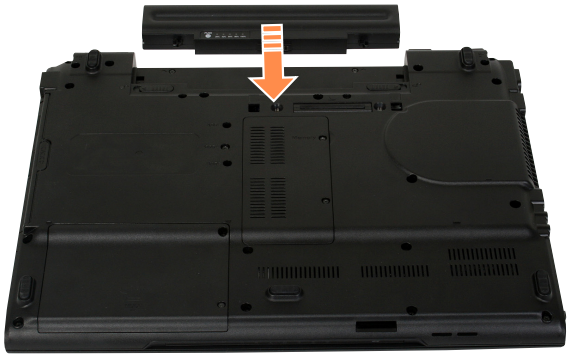
1 Shutdown the system, close the LCD panel and place the computer upside down on a flat surface.

2 Pull the two battery latches **outwards** , then remove the battery.



3 To install the battery again, slide the battery into the system.

The battery latches move inwards and fix the battery automatically.



Check if the battery latch has been moved inwards.

Charging the Battery

1 Attach the battery and connect the AC adapter to the DC-in jack of the computer.

The battery will then start charging.

2 When charging is complete, the Charge LED turns green.

Status	Charge LED
Charging	Amber
Charging complete	Green
AC adapter not connected	Off

Measuring the Remaining Battery Charge

You can view the battery charge status by completing the following procedures.

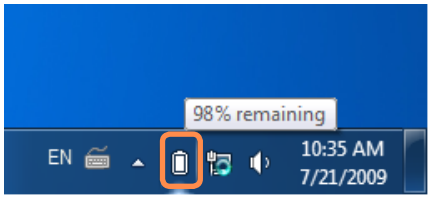
To use the shortcut key to view

Press the **Fn** + keys on the keyboard. The remaining battery charge (%) will displayed for a moment.

You can only view the charge status in this way when Easy Display Manager is installed on your computer.

Confirming the battery charge in the Taskbar

Disconnect the AC adapter and move the mouse cursor over the battery icon in the system tray of the Taskbar to confirm the remaining battery charge.



To view on the battery

Separate the battery and press the **PUSH** button inside the battery. The remaining battery charge (%) will be displayed.

Battery Warning

If the battery residual amount is 3~5%, the computer automatically shuts down after saving the data. The battery residual amount may vary depending on the computer model.

Battery Usage Time Information

A battery is an expendable supply, so when using it over a long time, the capacity/battery life is shortened. If the battery life is reduced to under half of its initial time, we recommend purchasing a new battery.

When not using the battery for a long time, store the battery after charging it to 30-40% of its capacity. This extends the battery life time.

Extending the Battery Usage Time

Decreasing the LCD Brightness

Press the **Fn** + keys on the keyboard to decrease the LCD brightness to extend the battery usage time.

Using the Battery Calibration Function

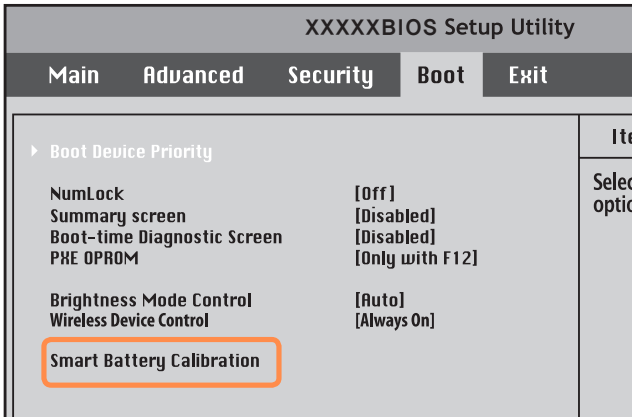
When charging/discharging the battery repeatedly for a short time only, the battery usage time may be reduced by the difference between the actual battery charge and the remaining charge display.

In this case, the actual battery charge and the remaining charge display will be the same by discharging the battery completely using the Battery Calibration function, and then recharging it again.

1 Disconnect the AC power adapter after turning off the computer.

2 Restart your computer and press the **F2** button when the Samsung logo appears, to start the BIOS Setup.

3 Move to the **Boot > Smart Battery Calibration** item using the direction keys and press <**Enter**>.



4 Highlight **Yes** in the **Battery Calibration Confirmation** window and press <**Enter**>.

The Battery Calibration function is activated and the battery is forcefully discharged. To stop the operation, press the <**Esc**> button.

This operation requires 3~5 hours depending on the battery capacity and the remaining battery charge.

Using the Security Lock Port

You can connect a Kensington lock to the Security Lock port to prevent your computer from being stolen when you have to use the computer in a public place.

To use this feature, you have to purchase the Kensington lock additionally. To use the Kensington lock, refer to the product manual.

Tie the Kensington lock cable to a fixed object and install the other end of the cable to the Security Lock port.

Chapter 4.

Troubleshooting

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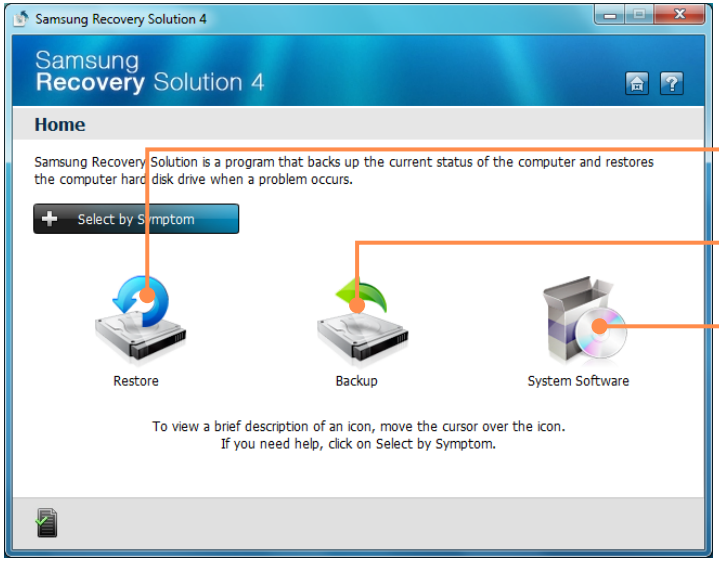
Using Samsung Recovery Solution (Optional)

Samsung Recovery Solution is a program that can **backup** your hard disk and **restores** it later when a problem occurs with your computer. It also provides a **System Software** function that enables you to install or backup device drivers and system software programs needed for your system to function properly.

Before You Start!

- **Samsung Recovery Solution** may not be provided or the version may differ depending on the model. In addition, some functions may not be provided or may differ depending on the version. For more information on using Samsung Recovery Solution, please refer to the online help of the program.
- The screen images in this document may differ from actual product.
- If your computer does not have an internal ODD, you need an external ODD connected to your computer to use the Backup Function or Restore Function using DVDs.
- The System Software function may not be provided depending on the program version.

Samsung Recovery Solution Functions


Samsung Recovery Solution 4
Samsung
Recovery Solution 4
Home
Samsung Recovery Solution is a program that backs up the current status of the computer and restores the computer hard disk drive when a problem occurs.
Select by Symptom
Restore
Backup
System Software
To view a brief description of an icon, move the cursor over the icon.
If you need help, click on Select by Symptom.

Restore: A function that restores the computer to a previous state after a problem occurs

Backup : A function that backs up the data on the computer

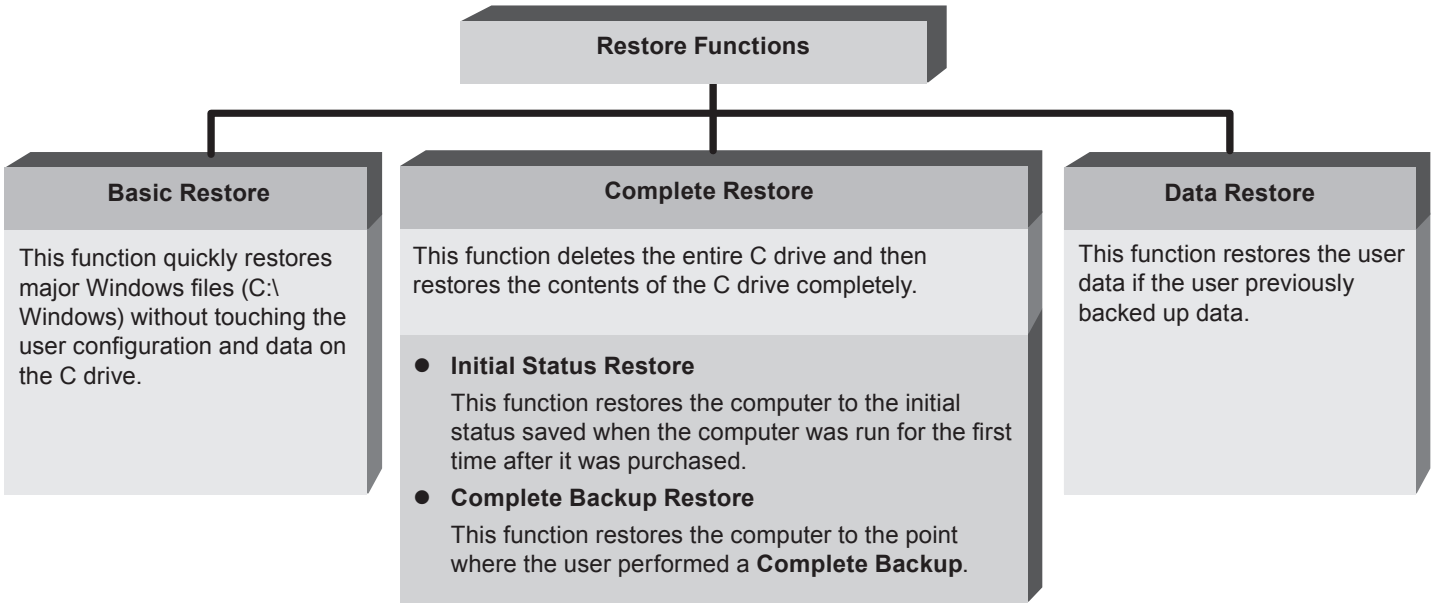
System Software: A function that reinstalls or backs up device drivers and application programs needed for the system

The system software function is supported by **Samsung Recovery Solution** version 4 or later. Therefore, the function may not be supported depending on the version.

Please back up your important data as data loss may occur for the C drive while restoring/backing up the computer through Samsung Recovery Solution.

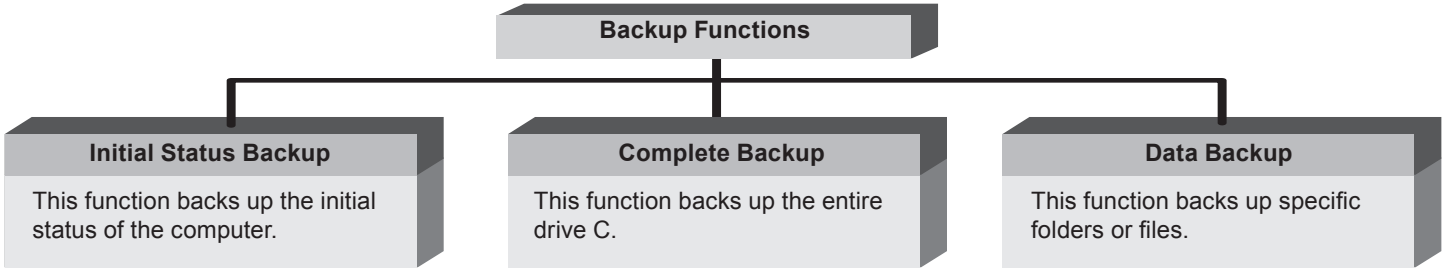
Restore Function

Using this function, you can easily restore your computer to a previous, stable state when your computer no longer works properly or you are unable to boot up your computer due to some problem. If you have backed up data, you can restore the backup data.


Restore Functions
Basic Restore
This function quickly restores major Windows files (C:\ Windows) without touching the user configuration and data on the C drive.
Complete Restore
This function deletes the entire C drive and then restores the contents of the C drive completely.
Initial Status Restore
This function restores the computer to the initial status saved when the computer was run for the first time after it was purchased.
Complete Backup Restore
This function restores the computer to the point where the user performed a Complete Backup.
Data Restore
This function restores the user data if the user previously backed up data.

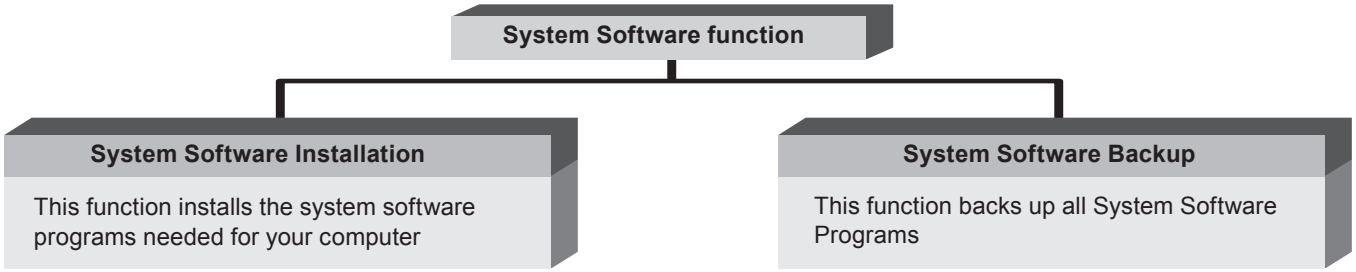
Backup Function

You can backup the entire C drive or all your data to another **hard disk drive** or **DVD**. You can restore the backed up drive or data using the Restore function.


Backup Functions
Initial Status Backup
This function backs up the initial status of the computer.
Complete Backup
This function backs up the entire drive C.
Data Backup
This function backs up specific folders or files.

System Software function

You can back up the System Software saved on the hard disk to another hard disk drive or DVD, and reinstall part or all software programs to your computer.


System Software function
System Software Installation
This function installs the system software programs needed for your computer
System Software Backup
This function backs up all System Software Programs

- The system software function is supported by **Samsung Recovery Solution** version 4 or later. Therefore, the function may not be supported depending on the version.
- You can confirm the version of the current Samsung Recovery Solution in the Samsung Recovery Solution screen.

  Example) If the program name that appears in the Samsung Recovery Solution screen is **Samsung Recovery Solution 4**, it indicates that the version of the Recovery Solution is version 4. If the name is **Samsung Recovery Solution III**, it indicates that the version of the Recovery Solution is version 3.

Restore Function

Not only can you use Samsung Recovery Solution when Windows is running, but also when you are unable to boot up into Windows. Let's learn how to use Samsung Recovery Solution.

Partition Setup & Initial Status Backup

If you turn your computer on for the first time, the Initial Status Backup function is performed after registering Windows. This function saves an image of the Initial Status of the C drive to a secure location so that users can restore the computer to the Initial Status using the Complete Restore function. An Initial Status Backup is only performed once immediately after the computer is purchased.

1 If you turn the power on for the first time, the Register Windows screen appears. If you register Windows according to the instructions on the screen, the computer will be restarted.

2 After the computer has been restarted, the **Partition Setup** screen appears.
To resize the C and D drives, adjust the partition size using the slide bar and the click **Next**.

The Partition Setup function is only available when the computer is turned on for the first time and will not be available afterwards. Once you have completed the partitioning, it cannot be resized. Partition the disk carefully.

3 The **Initial Status Backup** screen appears.
To continue the Initial Status Backup, click **Restart Now**. The computer will restart.

4 The Initial Status Backup is performed to backup the initial status of the C drive to a secure location. This backup image is used for the Complete Restore function that restores your computer to the initial status.

5 When the Initial Status Backup is complete, restart Windows.

Restoring the computer

Restore is a function that enables restoring the computer to a saved point when the computer was purchased or a user-saved point.

The Restore function provides the Basic Restore and Complete Restore options.

1 **– When Windows is running:**

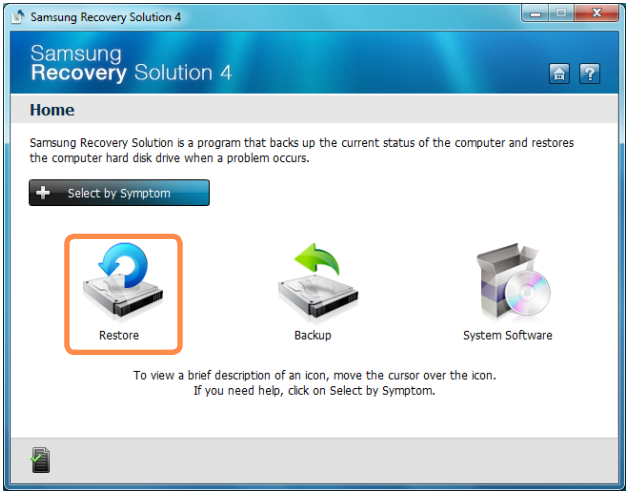
Click **Start > All Programs > Samsung > Samsung Recovery Solution > Samsung Recovery Solution**.

– When Windows does not start:

Turn the computer on and press the **F4** key when the boot screen (SAMSUNG logo) appears. After a moment, the computer boots up in Restoration mode and the Samsung Recovery Solution screen appears.

For computers supporting the touch screen function, the touch screen function does not work during Restore Mode. In this case, please use the touchpad or mouse.

2 If the initial menu screen appears, click **Restore**.


Samsung Recovery Solution 4
Samsung
Recovery Solution 4
Home
Samsung Recovery Solution is a program that backs up the current status of the computer and restores the computer hard disk drive when a problem occurs.
Select by Symptom
Restore
Backup
System Software
To view a brief description of an icon, move the cursor over the icon.
If you need help, click on Select by Symptom.

If you click **Select by Symptom**, the Select by Symptom menu appears. If you select a symptom, a recommended restoration option will blink. Click the restoration option to continue.

3 Select either **Basic Restore** or **Complete Restore** from the Restore menu.

- A **Basic Restore** restores the major Windows files only while maintaining the user configuration and data on the C drive in a short time.
- A **Complete Restore** deletes the entire C drive and then restores the contents of the C drive.

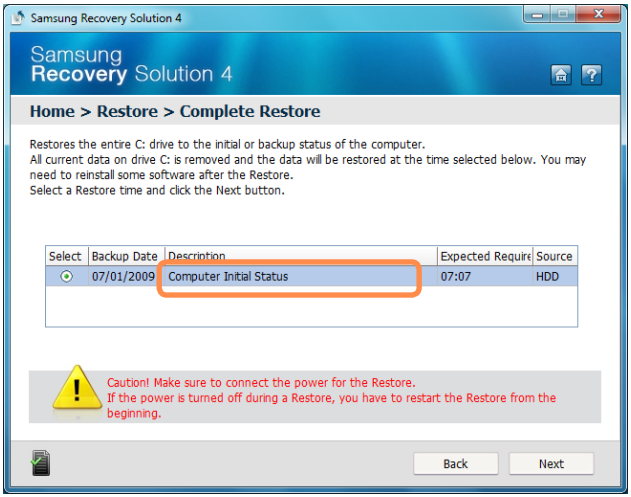
Run **Complete Restore** if the computer does not work even after **Basic Restore** has been completed.

3-1 If you have selected **Basic Restore**:

In the Basic Restore screen, click the **Next** button. The system will be restarted.

3-2 If you have selected **Complete Restore**:

In the restoration point selection screen, select the restoration point described as 'Computer Initial Status' and click the **Next** button. The system will be restarted.


Samsung Recovery Solution 4
Samsung Recovery Solution 4
Home > Restore > Complete Restore
Restores the entire C: drive to the initial or backup status of the computer.
All current data on drive C: is removed and the data will be restored at the time selected below. You may need to reinstall some software after the Restore.
Select a Restore time and click the Next button.
Select
Backup Date
Description
Expected Requir
Source
07/01/2009
Computer Initial Status
07:07
HDD
Caution! Make sure to connect the power for the Restore.
If the power is turned off during a Restore, you have to restart the Restore from the beginning.
Back
Next

Since a Complete Restore deletes all user data as well as additionally installed programs, please backup your important data first using the Data Backup function, before running Complete Restore.

4 If the Samsung Recovery Solution program is launched for the first time after purchasing the computer, the license agreement screen appears before the restoration is started. Read the agreement and click **Agree** to continue.

5 The computer boots up into restoration mode and the restoration progress message appears. If you click **OK**, the restoration begins. The restoration may take some time, please wait for a moment.

6 When the 'Restart the System' message appears after the restoration is complete, click **OK** to restart the system.

Make sure that the power cord is connected while the restoration is in process. The first time the computer boots up after a Complete Restore has been performed, the speed of the boot process may be slowed down due to the system optimization process. At this time, do not shut the computer down by force.

Backup Function

Complete Backup/Restore

A **Complete Backup** saves the complete image of the C drive onto another drive or DVD. A **Complete Restore** restores the image file saved by the Complete Backup onto the C drive.

❶ Complete Backup

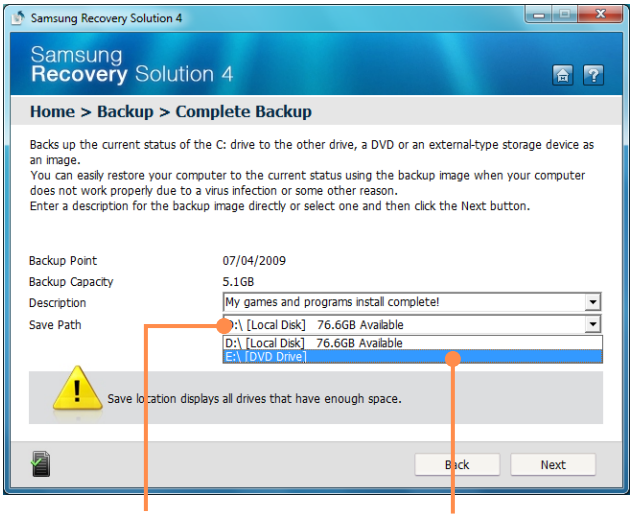
If you run Complete Backup using a DVD, you can restore the computer even when a problem occurs with the hard disk or when the restoration area is removed.

1 Click **Start > All Programs > Samsung > Samsung Recovery Solution > Samsung Recovery Solution**.

2 When the initial menu screen appears, click **Backup**.

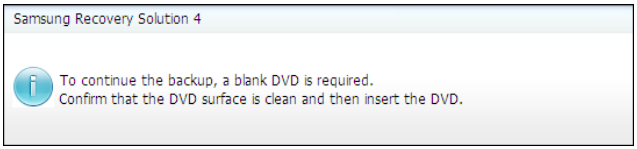
3 Click **Complete Backup** in the backup menu.

4 Enter a description for the backup regarding the current computer status in the Description field so that you can easily recognize it later, and specify the Save Path. If your computer has a DVD-Writer, you can specify the DVD drive as the Save Path.


Samsung Recovery Solution 4
Samsung Recovery Solution 4
Home > Backup > Complete Backup
Backs up the current status of the C: drive to the other drive, a DVD or an external-type storage device as an image.
You can easily restore your computer to the current status using the backup image when your computer does not work properly due to a virus infection or some other reason.
Enter a description for the backup image directly or select one and then click the Next button.
Backup Point 07/04/2009
Backup Capacity 5.1GB
Description My games and programs install complete!
Save Path D:\ [Local Disk] 76.6GB Available
D:\ [Local Disk] 76.6GB Available
E:\ [DVD Drive]
Save location displays all drives that have enough space.
Back
Next

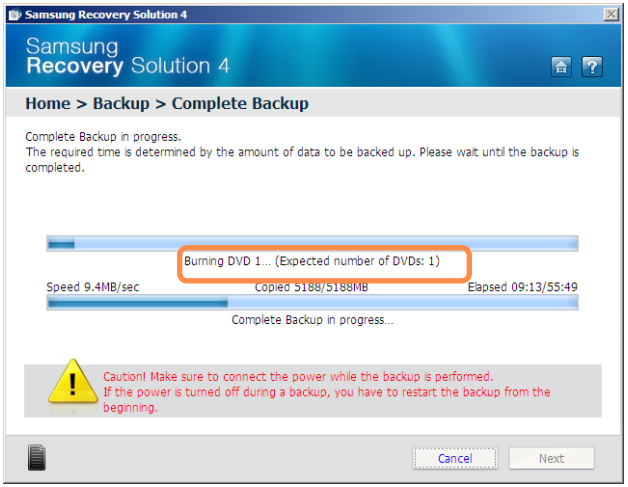
Select Drive D. **Select the DVD drive.**

5 If you click the **Next** button, the system restarts in restoration mode and the **Complete Backup** begins. If you have selected the DVD drive as the Save Path, the “Insert a blank DVD” message appears. Insert a blank DVD and click the **OK** button.


Samsung Recovery Solution 4
To continue the backup, a blank DVD is required.
Confirm that the DVD surface is clean and then insert the DVD.

Samsung Recovery Solution supports DVD+R, DVD-R, DVD+RW, and DVD-RW, but does not support CD-R, CD-RW, DVD-RAM, DVD-DL (Dual Layer), HD-DVD, and Blu-Ray.

6 The Complete Backup begins. If multiple DVDs are required, the expected number of DVDs is displayed in the progress screen. Whenever burning a DVD is completed, the “Insert the next DVD” message will appear. Continue the backup according to the instructions.


Samsung Recovery Solution 4
Samsung Recovery Solution 4
Home > Backup > Complete Backup
Complete Backup in progress.
The required time is determined by the amount of data to be backed up. Please wait until the backup is completed.
Burning DVD 1... (Expected number of DVDs: 1)
Speed 9.4MB/sec
Copied 5188/5188MB
Elapsed 09:13/55:49
Complete Backup in progress...
Caution! Make sure to connect the power while the backup is performed.
If the power is turned off during a backup, you have to restart the backup from the beginning.
Cancel
Next

7 When the ‘Restart the System’ message appears after the backup is complete, click **OK** to restart the system.

Complete Restore

1 **– When backing up onto DVD**

Turn the computer on and insert the backup DVD into the DVD drive.

If there are multiple backup DVDs, insert the first DVD.

– When backing up to another drive

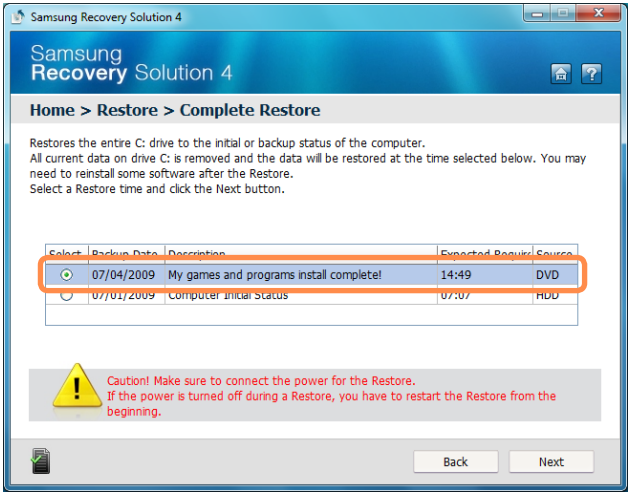
Proceed to Step 2.

2 Click **Start > All Programs > Samsung > Samsung Recovery Solution > Samsung Recovery Solution**.

When you cannot start Windows, turn the computer on and press the **F4** key in the boot screen to enter restoration mode.

3 When the initial menu screen appears, click **Restore** and then click **Complete Restore**.

4 Select a **Complete Backup** restoration point in the restoration point selection screen and click the **Next** button. The system is restarted.


Samsung Recovery Solution 4
Samsung Recovery Solution 4
Home > Restore > Complete Restore
Restores the entire C: drive to the initial or backup status of the computer.
All current data on drive C: is removed and the data will be restored at the time selected below. You may need to reinstall some software after the Restore.
Select a Restore time and click the Next button.
07/04/2009
My games and programs install complete!
14:49
DVD
Caution! Make sure to connect the power for the Restore.
If the power is turned off during a Restore, you have to restart the Restore from the beginning.
Back
Next

5 The restoration progress message appears after the computer boots up in restoration mode. If you click **OK**, the restoration begins.

If multiple DVDs have been used for a Complete Backup, whenever burning a DVD is completed, the “Insert the next DVD” message will appear.

6 When the ‘Restart the System’ message appears after the restoration is complete, click **OK** to restart the system. The Complete Restore has been completed.

Data Backup/Restore

Data Backup enables you to save specific files or folders onto another drive or DVD. **Data Restore** enables you to restore data using the data saved by a Data Backup when data is lost. This guide describes the Backup and Restore procedures on the basis of backing up and restoring by using DVD.

Data Backup

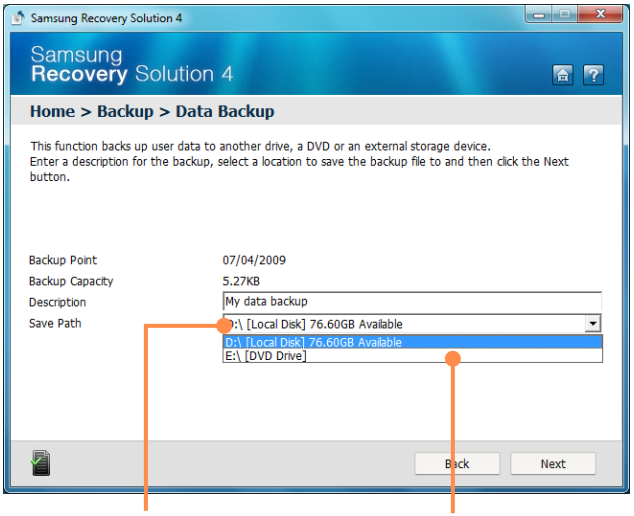
1 Click **Start > All Programs > Samsung > Samsung Recovery Solution > Samsung Recovery Solution**.

When you cannot start Windows, turn the computer on and press the **F4** key in the boot screen to enter restoration mode.

2 When the initial menu screen appears, click **Backup** and then click **Data Backup**.

3 In the data selection screen, select either **Basic Selection** or **Select from all**, select a folder or file to be backed up, and then click the **Next** button.

4 Enter a description for the backup in the **Description** field so that you can easily recognize it later and specify the **Save Path**. If your computer has a DVD-Writer, you can specify the DVD drive as the Save Path.


Samsung Recovery Solution 4
Samsung Recovery Solution 4
Home > Backup > Data Backup
This function backs up user data to another drive, a DVD or an external storage device.
Enter a description for the backup, select a location to save the backup file to and then click the Next button.
Backup Point
07/04/2009
Backup Capacity
5.27KB
Description
My data backup
Save Path
D:\ [Local Disk] 76.60GB Available
D:\ [Local Disk] 76.60GB Available
E:\ [DVD Drive]
Back
Next
Select Drive D.
Select the DVD drive.

If you have specified a hard disk drive or a removable disk as the Save Path, the **SamsungRecovery\SamsungData** folder is created on the corresponding drive (e.g. D:\) and the data is saved to the folder. Take care to not delete the folder by mistake or on purpose.

5 If you click the **Next** button, the Data Backup begins. If you have selected the DVD drive as the Save Path, the “Insert a blank DVD” message appears. Insert a blank DVD and click the **OK** button.

6 The “Backup is completed” message appears.

Data Restore

1 **– When backing up onto DVD**

Turn the computer on and insert the backup DVD into the DVD drive.

– When backing up to another drive

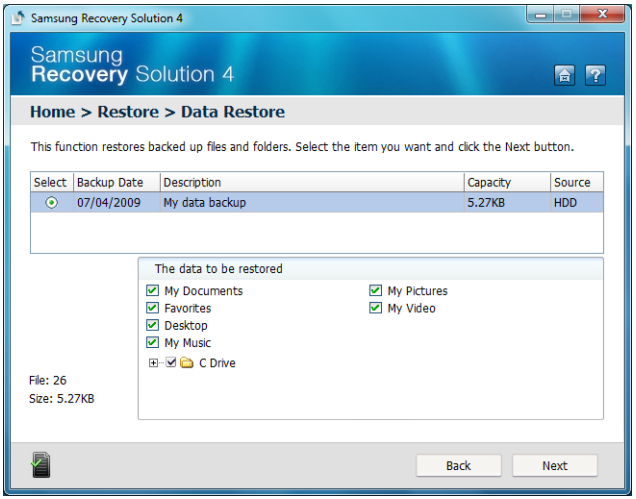
Proceed to Step 2.

2 Click **Start > All Programs > Samsung > Samsung Recovery Solution > Samsung Recovery Solution**.

When you cannot start Windows, turn the computer on and press the **F4** key in the boot screen to enter restoration mode.

3 When the initial menu screen appears, click **Restore** and then click **Data Restore**.

4 Select a backup item to be restored in the backup list and click the **Next** button.



5 Select a folder for the restoration and click the **Next** button. Data Restore begins.

6 When Data Restore is completed, check if the data has been restored to the specified folder.

Using System Software

The System Software function is a function that enables you to reinstall device drivers and System Software Programs or back up those programs.

The system software function is supported by **Samsung Recovery Solution** version 4 or later. Therefore, the function may not be supported depending on the version.

The System Software Installation Function only works in Microsoft Windows.

Installing System Software

1 Click **Start > All Programs > Samsung > Samsung Recovery Solution > Samsung Recovery Solution.**

2 When the initial menu screen appears, click **System Software > System Software Installation.**

Samsung Recovery Solution 4
Samsung
Recovery Solution 4
Home > System Software
[System Software Installation] is a function that installs the required device drivers and applications.
[System Software Backup] is a function that backs up the system software.
Select a function.
System Software Installation
System Software Backup
This function installs the system software.
If a device or Samsung application does not work properly,
you can reinstall the required applications individually or all at the same time.
Back

3 When the **Samsung System Software** screen appears, check all the device drivers and application programs you want to install and then click **Install Now.**

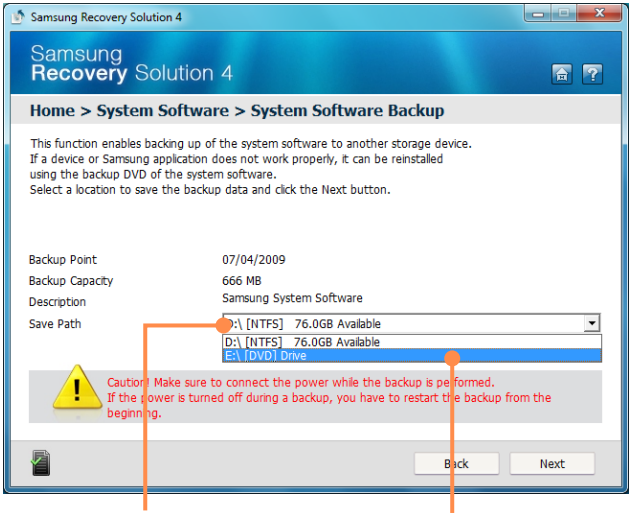
4 After the installation is complete, the computer will restart.

System Software Backup

1 Click **Start > All Programs > Samsung > Samsung Recovery Solution > Samsung Recovery Solution.**

2 When the initial menu screen appears, click **System Software > System Software Backup.**

3 Specify the Save Path. If your computer has a DVD-Writer, you can specify the DVD drive as the Save Path.


Samsung Recovery Solution 4
Samsung Recovery Solution 4
Home > System Software > System Software Backup
This function enables backing up of the system software to another storage device.
If a device or Samsung application does not work properly, it can be reinstalled using the backup DVD of the system software.
Select a location to save the backup data and click the Next button.
Backup Point
07/04/2009
Backup Capacity
666 MB
Description
Samsung System Software
Save Path
D:\ [NTFS] 76.0GB Available
D:\ [NTFS] 76.0GB Available
E:\ [DVD] Drive
Caution! Make sure to connect the power while the backup is performed.
If the power is turned off during a backup, you have to restart the backup from the beginning.
Back
Next
Select Drive D.
Select the DVD drive.

If you have specified a hard disk drive or a removable disk as the Save Path, the **SamsungSoftware** folder is created on the corresponding drive (e.g. D:\) and the system software programs are saved to that folder. Take care to not delete the folder.

4 If you click the **Next** button, the Software Backup begins. If you have selected the DVD drive as the Save Path, the “Insert a blank DVD” message appears. Insert a blank DVD and click the **OK** button.

5 After the backup, the **“System Software Backup is completed”** message appears.

- If you want to install the System Software Programs backed up on the drive, run the **SoftwareMediaXX.exe** file in the **SystemSoftware** folder.
- When installing System Software Programs from the backed-up DVD, insert the DVD and follow the System Software Installation directions.
- To delete Samsung Recovery Solution, refer to the Help section of the program.

Reinstalling Windows 7/Vista

(For Windows 7 and Windows Vista. For supported models only)

You can reinstall Windows using the **System Recovery Media** for Windows when Windows is no longer working properly. (For models supplied with a System Recovery Media.)

For models supplied with the Samsung Recovery Solution, you can reinstall Windows using the Samsung Recovery Solution.

These descriptions are for Windows 7 and Windows Vista and for supported models only.

Before You Start!

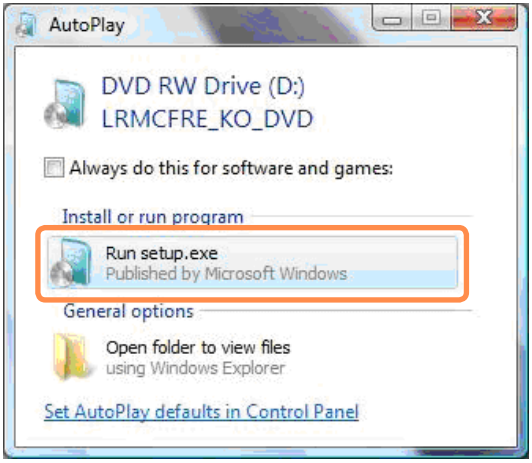
- A **System Recovery Media** may not be supplied depending on your computer model.
- If you cannot start Windows, or if you want to delete all existing data and reinstall Windows, install Windows according to the descriptions in **[Reinstalling when Windows does not start]**.
- These descriptions may differ depending on the operating system.

Reinstalling Windows may delete data (files and programs) saved on the hard disk drive. Make sure to backup all important data. Samsung Electronics shall not be held liable for any loss of data.

Reinstalling in Windows

1 Insert the **System Recovery Media** into the DVD drive.

2 When the **AutoPlay** window appears, select **Run setup.exe** and click **Allow**.



This screen may not appear depending on the security level.

3 If the Select Windows Installation window appears, click **Install Now**. When the Select Update window appears, click on the relevant item.

Install Windows
Windows 7
Install now
What to know before installing Windows
Copyright © 2009 Microsoft Corporation. All rights reserved.

Windows 7 installation selection window

Install Windows
Windows Vista
Check compatibility online
Install now
What to know before installing Windows
Transfer files and settings from another computer
Copyright © 2007 Microsoft Corporation. All rights reserved.

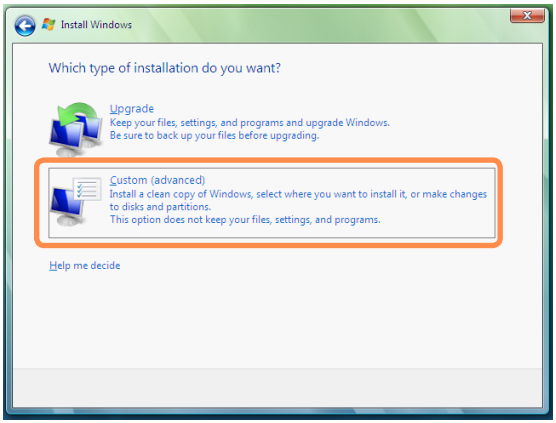
Windows Vista installation selection window

- If you select **Go online to get the latest updates for installation** in the Select Update window, the latest updates are installed and Step 4 follows. At this time, the computer must be connected to the Internet.
- For Windows 7/Vista, the screen asking for the operating system to be installed may appear depending on the version. If you click the **Next** button, the screen of Step 4 appears.

4 If the User Agreement screen appears, select **I accept the license terms** and then click **Next**.

For Windows 7/Vista, this screen may not appear depending on the version.

5 The following window appears, select an installation option.


Install Windows
Which type of installation do you want?
Upgrade
Keep your files, settings, and programs and upgrade Windows.
Be sure to back up your files before upgrading.
Custom (advanced)
Install a clean copy of Windows, select where you want to install it, or make changes to disks and partitions.
This option does not keep your files, settings, and programs.
Help me decide

If you click **Custom**, the procedures from Step 6 continue sequentially.

If you click **Upgrade**, the procedures from Step 7 continue sequentially.

- For **Windows 7/Vista**, this screen may not appear depending on the version.
- **Custom**

  Select this option to **Reinstall Windows**. You have to reinstall all necessary device drivers and programs after the Custom installation. In addition, unnecessary folders and files may remain on the hard disk drives after the installation (e.g. C:\ Windows.old, etc.).
- **Upgrade**

  Select this option to **Upgrade Windows** while maintaining current files, configurations and programs. Although you therefore do not need to reinstall the device drivers and programs, some programs may not work properly after the upgrade.

6 When a window appears asking for the location to install the operating system to, select a disk drive partition and click the **Next** button.

Drive D includes an area to save the backup image used by Samsung Recovery Solution. Installing Windows to drive C is recommended.

When previous Windows installation files are in the selected partition, a message appears informing you that the files and folders will be moved to the Windows.old folder. Click the **OK** button.

7 The Windows installation continues.

The computer will restart 3 times during the installation. If the **Press any key to boot from CD or DVD...** message appears after a restart, do not press any button.

8 Register a user according to the instructions on the Windows screen.

9 When the registration is complete, the Windows Desktop screen appears.

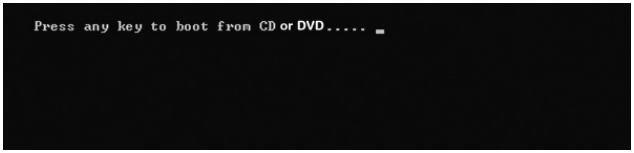
For a smooth computer operation, installing the necessary software installation is recommended.

Reinstalling when Windows does not start

When Windows does not start, boot up with the System Recovery Media and from there you can reinstall Windows.

1 Insert the **System Recovery Media** into the DVD drive and restart the computer.

2 If the **Press any key to boot from CD or DVD...** message appears while booting, press any key on the keyboard.



3 After a while, the Options windows such as Language, Time, Keyboard, etc. appear. Confirm the settings and click the **Next** button.

4 If the **Select Windows Installation** window appears, click **Install Now**.

For Windows 7/Vista, the screen asking for the operating system to be installed may appear depending on the version. If you click the **Next** button, the screen of Step 5 appears.

5 If the User Agreement screen appears, select **I accept the license terms and** then click **Next**.

For Windows 7/Vista, this screen may not appear depending on the version.

6 When the window asking for the installation type appears, click **Custom**.

For Windows 7/Vista, this screen may not appear depending on the version.

7 When a window appears asking for the location to install the operating system to, select the partition of the disk drive and then click the **Next** button.

Drive D includes an area to save the backup image used by Samsung Recovery Solution. Installing Windows to drive C is recommended.

- A If you click **Drive Options (Advanced)**, you can delete, format, create or expand a partition. Click on a function and proceed according to the instructions on the screen.
- When previous Windows installation files are in the selected partition, a message appears informing you that the files and folders will be moved to the Windows.old folder. Click the **OK** button.

8 The subsequent steps are the same as those from Step 7 of Installing in Windows.

Q & A

This section provides information on possible problems, solutions and other references for using the system.

- Since these descriptions are written on the basis of the latest operating system, Windows 7, some of the content and the figures of the descriptions may differ depending on the operating system. Since the procedures for other Windows operating systems are similar, use the computer referring to these descriptions.
- The path may differ depending on the operating system.

Windows Related

Q When unwanted confirmation windows appear repeatedly while installing or running a program, connecting to the Internet, or when you cannot use Internet banking services.

▶ **For the Windows Vista operating system**

A This symptom may appear when the **User Account Control** function is set in **Windows Vista**.

The **User Account Control** function enables the administrator to determine the program execution permission of user accounts and the function is set to **Use** by default in **Windows Vista** for security purposes.

Although your system is more protected from attack by malicious code if it is set to **Use**, this symptom may continue.

Although this symptom will not appear again if it is set to **Do Not Use**, your computer may be exposed to attack from malicious code.

❶ Click **Start** > **Control Panel** > **User Accounts and Family Protection** > **User Accounts** > **Use** or **Do Not Use User Accounts Control**.

❷ Unselect the **Protect the computer safer using User Accounts Control** option and click the **OK** button.

The **User Account Control** will be set to **Do Not Use** and the windows will not appear again.

▶ **For the Windows 7 operating system**

A In **Windows 7**, the frequency of the confirmation window that appears during the program installation or execution or after changing Windows settings is determined by the security level setting in the **User Account Control**. This may occur when the security level in the **User Account Control** is set to **Alarm always**.

❶ Click **Start** > **Control Panel** > **User Accounts and Family Protection** > **User Accounts** > **Change User Accounts Control Settings**.

❷ Select a level and click the **OK** button to finish the setting.

Q The Windows Firewall setting according to the network location (for the Windows 7 operating system only)

A **Windows 7** allows different Windows firewall settings for each network location.

The following network locations are available: **Home Network**, **Company Network** and **Common Network**. You can determine whether to use the Windows Firewall and select a firewall security setting for each location.

❶ If the network setting window appears in Windows 7 after setting up the IP address, select a location.

❷ Click **Start** **> Control Panel > System and Security > Windows Firewall > Activate or Deactivate Windows Firewall**.

❸ Set up a firewall for the **Home and Company (Private) Network Location Settings** and the **Common Network Location Settings**, and click the **OK** button.

Q What Is Virtual XP? (For Windows 7 only)

A **Virtual XP** refers to a virtual operating system that allows you to run **Windows XP** virtually in the **Windows 7** environment. By using **Virtual XP**, you can use applications that do not run on **Windows 7**.

▶ **Requirements for Running Virtual XP**

❶ **Virtual XP** is only available on these three operating systems: **Windows 7 Professional**, **Ultimate**, and **Enterprise**.

❷ The memory must be 2 GB or more and the virtualization function of the BIOS must exist and be activated by the CPU.

For more information, refer to the Help section of the OS or visit Microsoft's website.

Q What are the restrictions of Windows 7 Starter?

A ❶ The DualView function is not supported when an external display device is connected.

❷ The Aero function of Windows 7 is not supported.

❸ The **Set as Background** function to change the wallpaper of the Desktop is not supported.

❹ Functions that are not supported by the operating system, may also not be supported by related programs such as Easy Display Manager, the graphics driver and so on.

For more information, refer to the online help of the Windows 7 or the Microsoft web site.

Display Related

Q The LCD screen is too dark or too bright.

A Turn the LCD backlight on or adjust the LCD brightness.

Press **Fn** + to turn the LCD backlight on or press **Fn** + or **Fn** + to adjust the LCD brightness.

Q The screensaver is activated while Media Player is playing a movie or video clip.

A Unselect **Library > More Options > Player > Allow screen saver during playback** in the Media Player.

Q In the following cases, the screen blinks or there is noise for a short time.

- **Click the Graphics Related tab, Change Resolution, Change Display Device, Remove the AC Adapter, Restart the System, Change Power Scheme.**

A This may happen while the video driver is examining the connected device. While the detection process is busy, any connected display devices may blink or some noise may occur.

Q When I connect a projector, and change the settings to display the screen image on both the LCD and the projector by pressing the Fn+ , the screen is not displayed properly.

A Press the **Fn** + keys again.

If the problem continues even after pressing the key combination, this is because the current resolution is too high and is not supported by the projector. In this case, change the resolution to 1024x768 pixels.

Q When I connect a projector, the taskbar at the bottom of the screen is not displayed on the projector.

A This occurs because a WXGA LCD supports a resolution of 1280×800 pixels but the resolution is not supported by the projector. In this case, change the resolution to 1024x768 pixels (recommended).

Q The shortcut icons are not displayed on the screen even if I press the shortcut key.

A The shortcut icons only appear when the Easy Display Manager program is installed.

Q **I have connected a monitor (or projector) to the computer, but the colors on the monitor are abnormally displayed.**

A Check if the monitor and computer are properly connected with the signal cable and reconnect the cable if necessary.

Q **I am trying to view the screen through a TV by connecting it through the HDMI port, but the edge of the screen is not displayed.**

A It is recommended using a notebook computer screen or monitor for documents and Internet pages. Although connecting via the HDMI port is recommended when watching video, it may be inappropriate for displaying documents and Internet pages because most TVs that support HDMI fail to display the edge of the screen or the characters on the screen properly.

Q **I cannot configure the Image Sharpness in the NVIDIA Control Panel of [NVIDIA Graphics].**

A The **NVIDIA Control Panel >Adjust desktop Color Settings > Image Sharpening** item is set to **None** and will not be configurable. This is normal. This function is only available for old graphic chipsets.

Sound Related

Q How can I configure the sound for video or audio chatting?

A Configuring the Realtek HD Audio Manager

❶ Select **Control Panel > Realtek HD Audio Manager**.

❷ Select the **Mic** tab.

❸ Select the Noise Suppression and the Acoustic Echo Cancellation items and click the **OK** button.

When using the Acoustic Echo Cancellation option, select the **Play Device > Speaker > Level** tab and set the Microphone to Mute.

Q I cannot hear my voice with the internal microphone.

A This is because the sound from the internal microphone is removed so that the sound is not delivered to the speaker and causes feedback from the internal microphone. However, you can record the sound from the microphone normally.

When using an external microphone, select the **Play Device > Speaker > Level** tab and deselect Mute for the Microphone. Then you can listen to the sound from the external microphone through the speakers.

Q Sound is recorded abnormally when I select the Acoustic Echo Cancellation option, connect an external microphone, select the Play Device > Speaker > Level tab and then deselect Mute for the Microphone.

A This occurs because the algorithm used to remove the echo sound regards some of the sound as an echo and removes this, as the recording is done by playing the sound from the external microphone.

After selecting the Acoustic Echo Cancellation option, please select the **Play Device > Speaker > Level** tab and select Mute for the Microphone for a normal recording.

Modem Related

Q I cannot hear the modem

A1 Check if the phone line is properly connected to the modem.

A2 Check if the modem driver is properly installed.

❶ ► **For Windows 7**
Click **Start > Control Panel > System and security > System > Device Manger** and then check if the modem is not marked with a yellow exclamation mark. If it is marked with an exclamation mark, it means that the modem driver is not properly installed. In this case, remove the installed driver and install the driver again.

► **For Windows Vista**
Click **Start > Control Panel > System and Maintenance > System > Device Manager** and then check if the modem is not marked with a yellow exclamation mark. If it is marked with an exclamation mark, it means that the modem driver is not properly installed. In this case, remove the installed driver and install the driver again.

❷ If the modem is not marked with a yellow exclamation mark, double-click the installed **Diagnostics tab > Query Modem** reaction to the command, it means the modem is out or order.

In this case, restart the system or reinstall the modem driver and then diagnose the modem again.

(Close all applications using the modem before diagnosing the modem.)

Q When you are unable to make a call when using a switchboard

A In general, the dial tone of a switchboard or a digital phone switching system is not continuous unlike that of a PSTN line. Therefore, the modem may not make as a busy signal. In this case, perform either of the following:

- **Using AT command**

  Add ATX3 command for initialization.

  Alternatively, enter ATX3 command first before make a phone call.

  The modem will not check the dial tone before making a phone call.

- **Configuring the Modem in the Control Panel**

  ❶ ► **For Windows 7**
  Click **Start** and type "Phone" in the search Box.

  ► **For Windows Vista**
  Click **Start > Control Panel > Hardware and Sound**.

  ❷ Click on **Phone and Modem Options**.

  ❸ In the **Modem** tab, select an installed modem and click **Properties**.

  ❹ ► **For Windows 7**
  In the **Modem** tab of the Modem Properties window, uncheck "**wait for dial tone before dialing**" option.

  ► **For Windows Vista**
  In the **Modem** tab of the Modem Properties window, unselect the **Make a phone call after waiting for a dial tone** option.

❺ When the settings are complete, click the **OK** button.

If you cannot make a phone call starting with a 0, such as 01432, 01421, 01433, etc., this is because the private switching system is set to block long distance calls. Ask your switching system administrator.

Q When using the modem overseas

A1 Check if the country setting of the modem is set to the current country.
Since each country has slightly different telecommunication values, if the location is not set to the corresponding country, the modem may fail to make a phone call.

❶ ► **For Windows 7**
Click **Start** and type "Phone" in the search Box.

► **For Windows Vista**
Click **Start > Control Panel > Hardware and Sound**.

❷ Click on **Phone and Modem Options**.

❸ In the **Dialing Rules** tab, click **Edit**.

❹ In the **General** tab of the Edit Location window, set the Country/Region to your current country, enter the region code and then click the **OK** button.

A2 Since the shape of the phone line connector may differ depending on the country you are in, you may have to buy a phone line connector to make a phone call from that country.

Q How can I receive a FAX in Sleep mode (Standby Mode)?

A To receive a FAX when the computer is in Sleep Mode (Standby Mode), the computer must be configured as follows:

Please refer to the FAX program manual and configure the FAX program to receive FAX automatically.

❶ ► **For Windows 7**
Click **Start** and type "Phone" in the search Box.

► **For Windows Vista**
Click **Start > Control Panel > Hardware and Sound**.

❷ Click on **Phone and Modem Options**.

❸ In the **Modem** tab, select an installed modem and click Properties.

❹ ► **For Windows 7**
In the **Power Management** tab of the Modem Properties window, select the **Allow this device to wake the computer** option and click the **OK** button.

► **For Windows Vista**
In the **Power Management** tab of the Modem Properties window, select the **Wake up the computer with this device** option and click the **OK** button.

(If the Power Management tab does not appear, select Change Settings in the General tab.)

When the modem is configured as above, and a FAX arrives, the computer wakes up from Sleep Mode and receives the FAX.

Wired Network (LAN) Related

Q The <Wake On LAN> function

A <Wake On LAN> is a function that activates the system from Sleep mode when a signal (such as a ping or magic packet command) arrives over the network (wired LAN).

- **Using the <Wake On LAN> Function**

❶ ► **For Windows 7**

Click **Start > Control Panel > Network and Internet > Network and Sharing Center** and click on **Change adapter settings** in the left menu pane.

► **For Windows Vista**

Click **Start > Control Panel > Network and Internet > Network and Sharing Center** and click **Manage Network Connections** in the left pane.

❷ Right-click on the Local Area Connection and select Properties.

❸ Click **Configure > Power Management** tab. Select **Allow this device to bring the computer out of standby**, then click **OK**. Restart the system.

– If the system wake up from Sleep mode even though there is no received signal, use the system after disabling the <Wake On LAN> function.

– The LAN LED may not be turned off if System is shutdown without disabling the WOL (Wake on LAN) option.

– Connecting a wired LAN while using a wireless LAN may not activate the <Wake On LAN> function. Set the Wireless LAN to **Disable** to use the <Wake On LAN> function.

For Windows 7, Wake On LAN is not supported Ping.

Q When I am connected to a 100Mbps/1Gbps wired LAN and the computer exits Sleep/hibernation mode, a message appears informing you of a connection to a 10Mbps/100Mbps wired LAN.

A When the computer exits standby/hibernate mode, restoring the network takes about 3 seconds.

When the network is restored, it operates at 100Mbps/1Gbps.

Q The Home Group function (for the Windows 7 operating system only)

A **Home Group** is a function that enables connecting all the computers at home allowing users to access the data on all computers as if accessing the data on the local computer.

If you set the first computer to use a **Home Group** as a **Home Network**, you can create a **Home Group**. A second (and more) computer can participate in the created **Home Group**. A password is required for participation and you can confirm the password on the first computer.

This function is only available between computers that have the **Windows 7** operating system installed. If an older operating system that Windows 7 is installed on a computer, the computer cannot create or participate in a **Home Group**.

In addition, the **Windows 7 Starter** version does not support the **Home Group** function.

Wireless Network (WLAN) Related

Q I cannot find an AP.

A Verify whether the Wireless LAN LED is on.

If it is turned off, turn it on by pressing the Wireless LAN On/Off button (**Fn** +).

Q The Wireless LAN device is operating properly, but I cannot connect to the Internet or to another computer.

This is due to an incorrect configuration, or a configuration error. Check the following:

A1 When connecting to a wireless Ad-Hoc network, check if the network name (SSID) is the same.

A2 If a network key (encryption key) is used, the AP (Access Point) and wireless Ad-Hoc network keys must be the same.

The AP network key can be configured using an AP management program. For more detailed information, ask your network administrator or product provider.

A3 Check that the device driver is installed properly. If the driver is not properly installed, you will find a yellow exclamation mark on the network icon by clicking **Device Manager > Network Adapter**.

Q The signal strength is excellent, but I cannot connect to the network.

Even if the signal strength is excellent, the network connection may not operate properly if the TCP/IP properties are not properly configured, or the network key (encryption key) is incorrect.

A Check that the TCP/IP properties are configured properly. When connecting to an AP, right-click the **Network Connections** icon on the taskbar and select **Network and Sharing Center**. If you click the **View Status** next to a connected wireless network device and then click the **Detail** button, you can view the IP information. If the IP is not allocated properly, the IP address will be displayed as follows (e.g. 169.254.xxx.xxx).

If the network does not provide DHCP, you have to specify the correct IP address by asking your network administrator.

Even if the network provides DHCP, the server may not allocate an IP address to the client properly, and the client station cannot connect to the network.

Q I cannot connect to the AP.

Check the Computer Settings

A1 Select **Start** > **All Programs** > **Accessories** > **Windows Mobile Center** and check the wireless device status.

- **When it is represented as Disconnected**
  This means the computer is not connected to the AP. Check the status of the AP, referring to the descriptions of the **Checking the SP Settings** section below. Check the encryption key configured in the AP and retry to the connection.
- **When it is represented as Connected, but you cannot connect to the Internet**
  This means the computer is connected to the AP, but the AP or external network connected with the AP may have a problem.
- **When the 'There is no wireless LAN adapter' message appears or there is no wireless LAN icon**
  This means the wireless LAN device is set to **Do Not Use** or the device is not recognized.
  Check if the wireless device is properly recognized in the Device Manager window. If the device is set to **Do Not Use**, right-click and select **Use** from the pop-up menu.

A2 Verify whether the same network key (encryption key) has been entered for both the AP and the computer. The network key is an encryption key for encrypting the data transmitted between the AP and the computer. It is recommended setting the network key manually.

Check the AP Settings

For the AP settings, refer to the User Guide provided by the AP manufacturer.

A3 Verify whether the environment is suitable for using a wireless LAN. The use of a wireless LAN may be restricted according to the environment and distance. Obstacles such as walls or doors affect the use of a wireless LAN. Install the AP in a high and open space, 50cm from the wall and far removed from any other radio signal sources.

A4 Verify whether the AP is operating properly.

- When the AP is not operating normally, turn off the AP, wait a short while, and turn it on again.
- Verify whether the AP's firmware is the most recent version. (Contact the AP manufacturer or the place where you purchased the AP for details of the AP firmware.)

A5 Verify whether the AP has been properly connected to the network. Verify whether the network is operating normally by connecting the wired network cable, which has been connected to the AP, to your computer.

A6 Check the network key settings (encryption key) again. When automatic code conversion (a passphrase function) has been selected and data communication is not functioning even with a normal wireless connection, it is recommended entering the network key (encryption key) manually.

A7 Check the AP settings as follows. (The following is recommended for a standard environment and thus may differ according to the specific wireless network environment.)

- When several APs are present simultaneously, check the channel settings for each AP. When different APs are using nearby channels, interference may occur between the electronic waves. Set the AP channels further apart from each other. (Ex: Ch1, Ch5, Ch9, Ch13)
- When an AP's SSID (Service Set ID) option is set to "Hide", you cannot search for that AP on the computer. We recommend unselecting the "Hide" option for the AP. The SSID is a name used for distinguishing one wireless LAN from another wireless LAN.
- It is recommended using Long Preamble. Preamble is a signal for data transmission synchronization. Short Preamble may be supported by some types of APs but may cause compatibility problems.
- It is recommended using a static IP.
- Since static channel selection is more reliable than auto channel selection, it is recommended using a static channel.

Q I cannot connect to a computer connected to the Ad-Hoc network.

A1 Check the security settings and network name of the wireless Ad-Hoc network.

A2 Check the TCP/IP settings of the computers connected to the wireless Ad-Hoc network. The IP addresses of the computers to be connected to a wireless Ad-Hoc network must be set to the same sub-network address.

- For example, if the TCP/IP setting is configured to a fixed IP address, select Use the following IP address in the TCP/IP Properties of the wireless adapter, configure the items as follows and try again.

  IP: 10.0.0.1~10.0.0.254, Subnet Mask: 255.255.255.0.

  It is recommended using a fixed IP address for wireless Ad-Hoc network connections.

A3 You have to register the IP address allocated for the wireless adapter as a 'Trusted IP' in McAfee SecurityCenter.

- Click **McAfee SecurityCenter > Advanced menu > Configure > Internet and Network > Advanced > Trusted and Banned IPs**, and register the IP address or IP address range as a Trusted IP address.

Q During the wireless Ad-Hoc network operation, the AP (Access Point) is intermittently not found.

A This problem occurs intermittently during the wireless Ad-Hoc network operation. Even if this problem occurs, the wireless Ad-Hoc network operation is working properly and is not affected. Click Refresh to update the AP list.

Q I have set the same IP address for both the wireless and wired connections, but they do not work properly.

A You cannot use wireless and wired connections using the same IP address. To sequentially use both the wired and wireless connections with the same IP address, you need to set the currently not needed connection to Do Not Use in the Network Connections of the Control Panel.

Q The wireless LAN does not work properly when there is a device operating on an adjacent frequency in the vicinity of the product.

A1 Channel interference may occur when a wireless video transceiver or a microwave oven is being used. If you experience channel interference from other equipment, we recommended changing the channel for connecting to the AP. For more information about AP settings, refer to the User Manual supplied by the AP manufacturer.

A2 Since IEEE802.11g equipment operates in hybrid mode when there is active IEEE802.11b equipment, the data rate may be degraded.

Game and Program Related

Windows may not provide some functions properly when performing some applications especially games, or may cause a problem due to a device driver compatibility issue. For the latest device drivers and bug fixes, please refer to the respective company's website.

Q A 3D game does not work, or some functions are not working.

A Change the graphics settings of the game to '2D' or 'Software Renderer', then run the program again.

Q The game is not displayed smoothly on the screen.

A For 3D games, the texture data for the 3D screen display is saved to the system memory.

If there is insufficient system memory, the data is saved to the hard disk drive and loaded to memory when required. This operation may temporarily stop displaying the picture on the screen.

In this case, lower the game resolution or the screen settings.

Q The picture on the screen is displayed as a broken image for some games.

A A part of the picture on the screen may be broken when playing some games that require a high-specification graphics card.

In this case, set the 3D function setting for the game to a lower value or set the game resolution to a lower value.

Bluetooth

Q How to view the Bluetooth help information.

A Press the Windows + F1 key combination to launch Windows Help and search for Bluetooth related items in the Help section.

Q When no headset is found or cannot be connected

A1 If the headset is already connected to another device, you will not be able to find the headset and cannot connect to the headset even if the headset is found. Disconnect the connection to the other device and then start the search again.

A2 If the headset is connected to a power adapter, you cannot make a Bluetooth connection.

Disconnect the power adapter and then retry.

A3 In general, a Bluetooth headset has 2 operating modes, On/Off mode and Pairing mode.

To connect the headset to another Bluetooth device such as a PC or cell phone, the headset must be in Pairing mode.

Switch the headset to Pairing mode and then retry the search operation.

In general, the headset in Pairing mode automatically returns to On/Off mode after a certain period of time.

Usage Instructions

- Generally, Bluetooth devices deliver stable performance while connected within a 3m(10 ft.) distance.
- For Bluetooth to operate smoothly, use the computer in an open environment with no walls or obstacles in the way.
- You can connect to only one Bluetooth device at a time for a phone connection, data syncing, electronic business card exchange, FAX transmission/reception, sound related functions, and serial port functions.
- It is recommended using only one Bluetooth device at a time as connecting multiple Bluetooth or other wireless devices at the same time may slow or destabilize the Bluetooth connection.
- Data communications via Bluetooth may be poor when the CPU load is at full capacity or there are insufficient system resources.
- The Bluetooth function of a Bluetooth PDA, mobile phone, mouse or keyboard may be turned off. To use them in connection with a Samsung computer supporting Bluetooth, you must check if the Bluetooth function of the device to connect to is turned on.

  For the procedures on turning on the Bluetooth function of a device, refer to the relevant device manual.
- The services provided by Bluetooth devices may vary depending on their capabilities. For the services provided by the Bluetooth device, refer to the device manual.

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Product Specifications

The system specifications may differ depending on the derived models. For detailed system specifications, refer to the product catalogue.

CPU (Optional)	Intel Core™2 Duo/Celeron processor
Main Memory (Optional)	Memory type : DDR3 SODIMM
Main Chipset (Optional)	Intel GM45 /PM45 + Intel ICH9M/ICH9M-Enhanced
Hard Disk Drive (Optional)	9.5mmH SATA HDD
Graphics (Optional)	Intel GM45 (Internal) Nvidia GeForce 9600M GS (External)
Operating Environment	Temperature : -5~40°C for storage, 10~35°C when operating Humidity : 5~90% for storage, 20~80% when operating
Operating Voltage	100 - 240VAC
Frequency	50/60Hz
Output Power (Optional)	60/90W
Output Voltage (Optional)	19V 3.16A (60W) or 19V 4.74A (90W)

- Optional components may not be provided or different components may be provided depending on the computer model.
- The system specifications are subject to change without notice.
- The hard disk drive capacity of a computer in which Samsung Recovery Solution is installed, is represented as smaller than the product specification.

Registered Trademarks

Samsung is a registered trademark of Samsung Co., Ltd.

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ENERGY STAR® Partner

As an ENERGY STAR® Partner, SAMSUNG has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

Glossary

The Glossary lists the terminologies used in this User Guide.
For terminologies other than these, look in Windows Help.

Backup

A way to save the current data to restore it later if necessary. A backup is a way to restore computer data when the data or computer is damaged.

Chargeable USB

This program enables supplying power to a specific USB port when the system is in power saving mode, hibernation mode or off.

Client

This refers to a computer that uses a shared network resource provided by a server.

DDR SDRAM (Double Data Rate Synchronous Dynamic Random Access Memory)

DRAM is a memory type whose cells consist of a capacitor and transistor manufactured at a low price. SDRAM is a memory type whose performance has been improved by synchronizing the clock with the external CPU clock. DDR SDRAM is a memory type whose performance has been improved by doubling the operating speed of the SDRAM and is widely used nowadays. This computer uses DDR SDRAM.

Device Manager

An administrative tool used to manage computer devices. You can add or remove hardware or update a device driver using the Device Manager.

Direct X

An application interface developed to enable Windows application programs to access hardware devices at a very high speed. Since the operating speed of graphics, memory and sound cards must be very fast to provide high quality video and sound for games, Direct X enables faster control and interaction between applications and hardware devices. By using Direct X, the multimedia performance of Windows has been hugely improved.

Driver

Software that interacts between the hardware and the operating system. An operating system knows the hardware information and controls the hardware. In general, a driver is supplied with the corresponding hardware device.

DVD (Digital Versatile Disk)

DVD was developed to replace CD (compact disk). Although the shape and size of the disc are the same as that of a CD, the capacity of a DVD is at least 4.7GB while the capacity of a CD is 600MB. DVD video is digital unlike VHS (analog) video and supports MPEG2 compression and digital audio. To play a DVD, a DVD drive is required.

Firewall

A security system used to protect an internal network or intranet from external networks

through an authentication procedure.

Hibernation Mode

A power mode that saves all data in memory to the hard disk and turns the CPU and hard disk off. When canceling Hibernation Mode, all application programs that were running are restored to their last state.

Icon

This refers to a small image that represents a file that users can use.

LAN (Local Area Network)

A communications network connecting computers, printers and other devices within a local area such as within a building. A LAN enables all connected devices to interact with other devices on the network. The current LAN uses the Ethernet media access control method developed in the early 1980s. To connect to an Ethernet, a network card called a LAN card, Ethernet card or network interface card is required. To exchange data between computers, a protocol is required besides the hardware equipment. Windows Vista uses TCP/IP as the default protocol.

LCD (Liquid Crystal Display)

There are Passive Matrix and Active Matrix LCD types. This computer uses the Active Matrix type LCD called a TFT LCD. Since an LCD is implemented by transistors instead of a cathode-ray tube unlike a CRT, its size can be slim. And because it does not blink, it reduces eye strain.

Network

A group of computers and devices, such as printers and scanners, connected by a communications link. A network can be either small or large and can be connected permanently through cables or temporarily through telephone lines or wireless links. The biggest network is the Internet, a worldwide network.

Network Administrator

A user who plans, configures and manages network operations. Sometimes, a network administrator is called a system administrator.

Notification Area

This refers to the right area of the Taskbar including program icons such as the volume control, the power options and the time.

Quick Launch

This refers to a toolbar that can be configured so that you can launch a program such as Internet Explorer or display the Windows Desktop with one click. You can add any icon to the quick launch area of the Taskbar and launch frequently used program by clicking that icon.

Server

In general, a server refers to a computer that provides shared resources for network users.

Share

This refers to setting a resource of a computer such as a folder or printer so that other users can also use it.

Shared Folder

A folder that can be used by other users on the network.

Sleep Mode

A power mode that enables computers to save power consumption when they are not being used. When a computer is in Sleep Mode, the data on the computer memory is not saved to the hard disk. If the power is turned off, the data in memory will be lost.

System File

System Files refer to files that are read and used by the Windows operating system. In general, system files must not be deleted or moved.

USB (Universal Serial Bus)

This refers to a serial interface standard developed to replace the conventional interface standards such as Serial and PS/2. While USB 1.1 supports 12Mbps (12 million bits per second), USB 2.0 supports a data rate that is 40 times (480Mpbs) faster than that of USB 1.1. The data rate of USB 2.0 is equivalent to that of IEEE1394. Therefore USB 2.0 is used for A/V devices supported by IEEE 1394 and a 2nd HDD and CDRW that require a high data rate.

Virtual XP Mode

This is a virtual operating system that enables running Windows XP programs on the Windows 7 operating system. Using this mode, you can run programs that do not run on Windows 7.

Windows Media Player

A multimedia program included with Windows. Using this program, you can play a media file, create an audio CD, listen to a radio broadcast, search and manage media files, and copy files to a portable device, etc.

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